MODERN SCHOOL GEOGRAPHIES

NORTH AND SOUTH AMERICA

THOMAS
PICKLES

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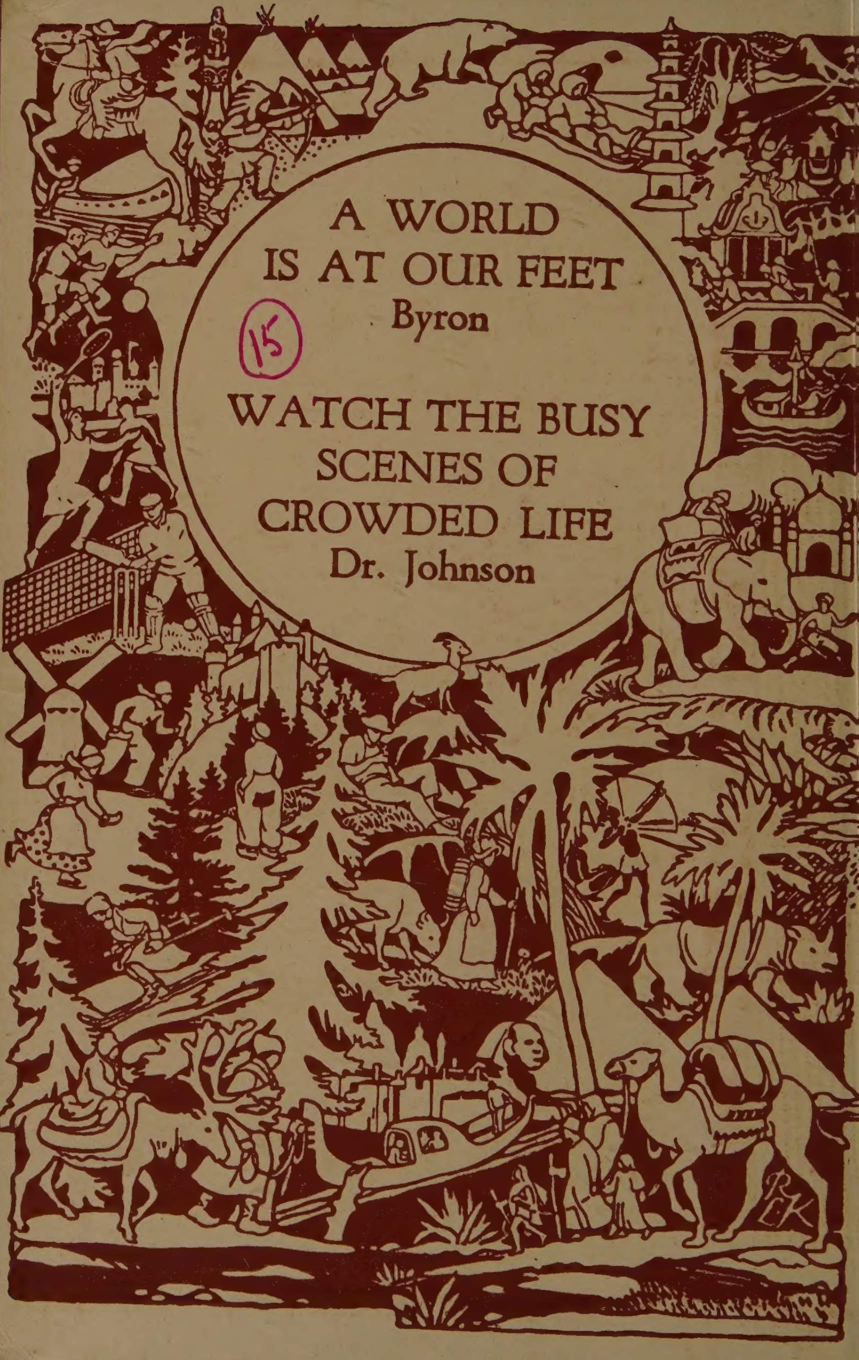

A WORLD
IS AT OUR FEET
Byron

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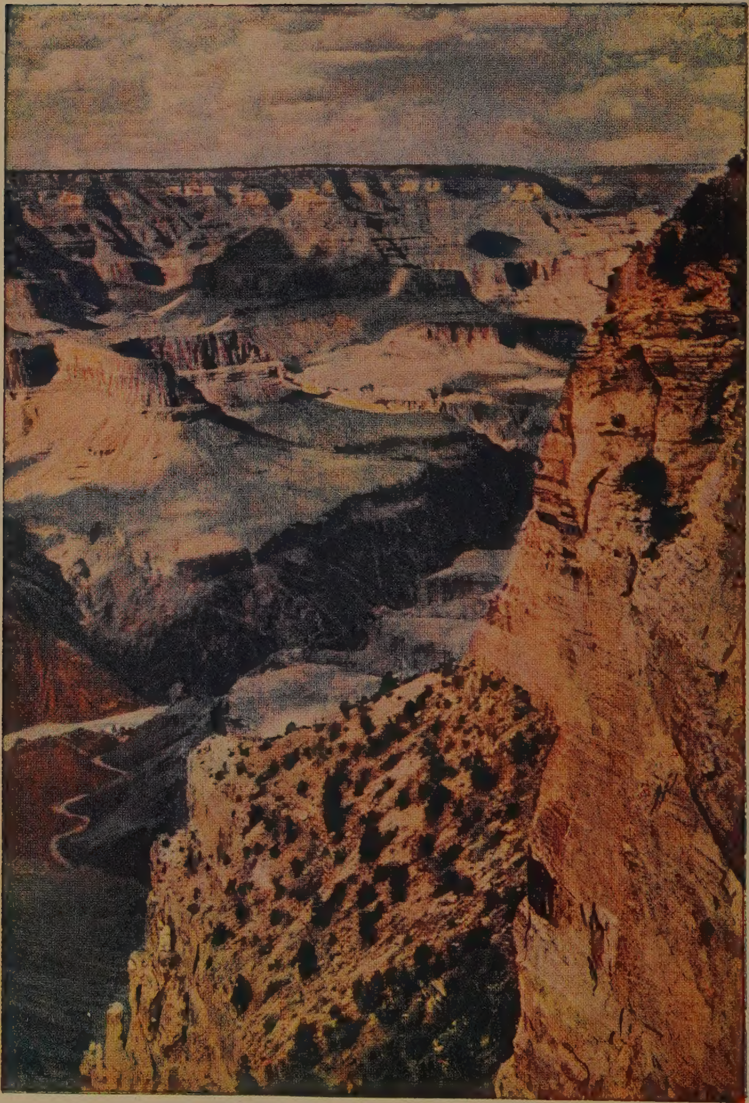
WATCH THE BUSY
SCENES OF
CROWDED LIFE
Dr. Johnson

EGINALD L. KNOWLES DES ET DEL



THE GREAT CANON OF THE COLORADO

DENT'S MODERN SCHOOL GEOGRAPHIES

North and South America

BY

THOMAS PICKLES, B.Sc.

WITH
161 ILLUSTRATIONS

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BEDFORD STREET LONDON WC2

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Aldine House · Bedford Street · London
Made in Great Britain
at
The Aldine Press · Letchworth · Herts
First published 1933
Revised and reprinted 1955

PREFACE

THIS series of text-books aims at providing not only a survey of the geography of the world for pupils up to the age of about fifteen in various types of Secondary Schools, but also an adequate basis for the more detailed studies leading to the General Schools Examination.

The books are most suitable for use in the following order:

1st year—Africa, Australia, and New Zealand.
2nd year—North and South America.
3rd year—Europe and Asia.
4th year—Britain and the Modern World.

As, however, each volume is self-contained, the order may be varied to suit the capacity of the pupils or the needs of the school course.

The regional grouping here adopted has the following advantages:

(1) The continents are dealt with in an ascending order of complexity, beginning with the relatively simple land forms and simple social organizations of Africa, and finishing with the highly complex region of western Europe.

(2) A large part of each year's course is devoted to the study of a major portion of the British Empire.

(3) The regional geography of the continents is covered in the first three volumes, the fourth being devoted to a study of Britain and a review of its relationship to the Commonwealth and to the world as a whole.

In each book some aspects of the geography of the British Isles are dealt with, so that a knowledge of our own islands is built up as the course proceeds. The fourth volume is planned primarily to follow the regional studies, but care has been taken to present the subject-matter in a form easily grasped by young pupils, so as to make it suitable for any who need a brief survey of world geography.

Throughout the course emphasis is laid on the home life and daily work of the people. No attempt has been made to follow the so-called 'scientific' sequence—'Position, Relief, Climate, Products, Occupations'—which too often succeeds only in killing the natural interest of the pupil. The aim has been rather to build up a conception of the varied activities of mankind in widely differing environments. It is confidently expected that the large number of illustrations which are included in each volume will very materially assist in this aim. For permission to use these, the author is deeply indebted to the various Consulates, Legations, Government Departments, Railway and Steamship Companies, etc., to whom acknowledgment is made at the foot of the reproductions.

Special thanks are also due to Messrs B. W. Saville and A. Heathcote, B.A., who kindly read the proofs.

T. PICKLES.

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CONTENTS

CHAP. PAGE
PREFACE vii
I. INTRODUCING SOUTH AMERICA 1
II. BRAZIL—THE AMAZON BASIN 8
III. BRAZIL—COAST LANDS AND INTERIOR PLATEAU . 15
IV. THE BASIN OF RIVER PLATE 23
V. REPUBLICS OF THE SOUTHERN ANDES . . . 42
VI. THE EQUATORIAL COUNTRIES OF THE NORTH-WEST AND NORTH 58
VII. CENTRAL AMERICA AND THE WEST INDIES . . 73
VIII. MEXICO 83
IX. TWO CONTINENTS AT A GLANCE 90
X. CANADA 94
XI. THE MARITIME PROVINCES 106
XII. THE ST LAWRENCE BASIN AND THE GREAT LAKES 117
XIII. THE GREAT LONE LAND 126
XIV. THE PRAIRIE LANDS 137
XV. THE ROCKY MOUNTAIN REGION 151
XVI. THE UNITED STATES 163
XVII. THE MISSISSIPPI LOWLANDS 174
XVIII. THE SOUTH ATLANTIC STATES 186
XIX. THE BUSY NORTH-EAST 193
XX. THE UNITED STATES AS A WHOLE . . . 207
GREENLAND 210
XXI. OUR OWN ISLANDS 211

INDEX 223

ILLUSTRATIONS

FIG. PAGE

Grand Canyon, Colorado (E.N.A.) . . *Frontispiece*
1. Puzzle Map of South America 2
2. South America—Physical 4
3. The World as known before the Discoveries of Columbus 6
4. Natives in their Bark Canoe on the Amazon . 9
5. Map of the Amazon Basin 10
6. Hut in the Amazon Forest 11
7. A Small Communal Hut in Brazil 13
8. Bahia: Business Quarter and Harbour . . . 16
9. Panoramic View of Rio de Janeiro Harbour . 18
10. The Situation of Rio de Janeiro 19
11. Coffee Picking in the State of São Paulo . . 20
12. Vegetation and Products of Eastern Brazil . 21
13. Natural Regions of Argentina 23
14. The Cattle Lands of Argentina and Uruguay . 24
15. Ploughing with Oxen, Argentina 25
16. Harvesting Scene on the Pampas 25
17. An Estancia on the Argentine Pampa . . . 26
18. The Grain Lands of Argentina 27
19. Wheat Awaiting Transport, Argentina . . . 28
20. The Sheep Lands of Argentina 29
21. Taking Wool to the Railway, Argentina . . 30
22. Sheep Market in Argentina 31
23. Statue of Christ on the Crest of the Andes . 32
24. Street in a Small Town in Cordoba, Argentina . 33
25. Puente del Inca, between Chili and Argentina . 35
26. Caracoles Station on the Chilean Side of the Andes 36
27. Aerial View of Montevideo Harbour . . . 38
28. Steamers at a Landing Stage on the Paraguay River 39
29. Falls of Iguazu, where Brazil, Paraguay, and Argentina Meet 40
30. Comparative Maps of Chile 43
31. Block-diagram of Chile 44
32. Blasting the Nitrate-bearing Rock in Chile . 45
33. Landscape in Middle Chile 46
34. Santiago: a Bird's-eye View 47
35. Peru and Bolivia—Physical 48

FIG. PAGE
36. Pelicans nesting on an Island off the Coast of Peru 49
37. Inca Ruins, Peru 50
38. A Street in the Business Section of Lima . . 51
39. Peru and Bolivia—Railways and Towns . . 52
40. A Road in the Andes 53
41. Lake Titicaca. An Indian in his 'Balsa,' made of Bulrushes 54
42. La Paz: the Main Street 55
43. The North-western Part of South America—Physical 58
44. View of Chimborazo Volcano, Ecuador . . . 59
45. Bird's-eye View of Quito 60
46. Cartagena: Bird's-eye View 63
47. The Magdalena River at Giradot 64
48. Pottery Market in Bogota 65
49. Products and Towns of the North-east . . 66
50. A Milkman on his Rounds, La Guaira . . . 67
51. View in Georgetown, British Guiana . . . 69
52. Kaieteur Falls, British Guiana 71
53. Central America—Puzzle Map 73
54. Diagram-section across Central America . . 74
55. On a Banana Plantation 75
56. Vessel in a Lock on the Panama Canal . . 76
57. Map of the West Indies 78
58. Coconut Palms, Jamaica 79
59. Barbados: a Scene on a Sugar Plantation . . 80
60. Mexico—Physical Map and Towns 83
61. A Primitive Method of Irrigation on the Mexican Plateau 85
62. Road Across the Basin in which Mexico City Lies 86
63. Oil-field at Vera Cruz, Mexico 88
64. North and South America—Physical Features . 90
65. North and South America—Temperature . . 91
66. North and South America—Climatic Divisions . 92
67. North America in 1713 95
68. North America in 1763 95
69. Canada in 1873 96
70. Jumbled-letter Map of Canada 97
71. The Vegetation of Canada 98
72. Montreal Harbour 99
73. Air View of Niagara Falls 101
74. Section through Niagara Falls 102
75 The Canadian 'Shield' 103
76. A Bit of the Northern Forest Area, showing Lakes and Streams 104
77. The Maritime Provinces 106

FIG. PAGE
78. The Harbour of Saint John, New Brunswick . 107
79. Rural Scene in New Brunswick 108
80. Apple Orchard in the Annapolis Valley . . 109
81. On a Silver Fox Farm 110
82. Laying out Cod-fish to Dry 111
83. Logs on a River in Eastern Canada . . . 113
84. St John's Bay in Winter 115
85. Lock on the Welland Canal 118
85a. Map of the Welland Canal 119
86. Farmhouse in Quebec 120
87. Map of the Lake Peninsula 121
88. Quebec Bridge, showing Passage opened by Ice-Breakers 122
89. Situation of Montreal 123
90. Business Quarter of Toronto 124
91. An Igloo 127
92. Contrasting Modes of Arctic Travel . . . 128
93. Beaver cutting a Tree 129
94. The Summer Tent of a Trapper on the Border of Hudson Bay 130
95. Air View of the Northern Forest . . . 131
96. A Forest Fire 133
97. Fire Ranger's Look-out 134
98. The Wheat Lands of Canada 137
99. Disking and Harrowing by Steam Tractor . . 138
100. 'Combine' Harvester at Work 139
101. Sunflowers, Brandon 140
102. Farmer delivering Wheat at the Railway Station 141
103. Wheat Elevators at Port Arthur . . . 142
104. Routes by which Canadian Wheat is exported . 143
105. Edmonton Oil-field: Distillation Unit . . . 145
106. Winnipeg in 1872 146
107. Winnipeg from the Air 147
108. Winnipeg as a Railway Centre 148
109. The Site of Calgary 149
110. Calgary To-day 149
111. Sketch-map of British Columbia 151
112. Unloading Salmon at a New Westminster Cannery 152
113. 'Flying Machine' Hauling a Log 153
114. A View in the Rockies 155
115. Kitimat Hydro-electric Scheme 157
116. The Chilcoot Pass in 1898 159
117. Flowers and a Moth from the Borders of the Arctic Ocean 160
118. A Reindeer Farm in Alaska 161
119. A Raft of Logs in the Western United States . 163

FIG. PAGE
120. SKETCH-MAP OF CALIFORNIA 164
121. PICKING ORANGES, CALIFORNIA 165
122. ORANGE GROVES AND SNOW-CAPPED MOUNTAINS IN CALIFORNIA 166
123. SAN FRANCISCO AND THE GOLDEN GATE . . . 167
124. THE GOLDEN GATE, SAN FRANCISCO: GOLDEN GATE BRIDGE IN THE DISTANCE 169
125. WESTERN U.S.A.—PHYSICAL MAP 170
126. DESERT SCENE IN ARIZONA 171
127. RANCHERS' HOME 172
128. THE MISSISSIPPI BASIN 174
129. CONCAVE AND CONVEX BANKS OF A RIVER . . 175
130. FORMATION OF OX-BOW LAKES 176
131. THE MISSISSIPPI IN FLOOD 177
132. LEVEE ON MISSISSIPPI AND STOCKADE BUILT TO PROTECT THE LEVEE 177
133. BARGES ON THE MISSOURI 178
134. BELTS OF CULTIVATION IN EASTERN UNITED STATES . 179
135. COTTON-PICKING, SOUTH CAROLINA 181
136. COTTON GIN IN THE STATE OF MISSISSIPPI . . . 182
137. WEEDING A RICE FIELD, LOUISIANA 183
138. UNLOADING COTTON FROM A STEAMER AT NEW ORLEANS 184
139. THE SOUTH ATLANTIC STATES 186
140. THE FALL LINE TOWNS 187
141. PALMS ON THE SHORE OF MIAMI RIVER, FLORIDA . 188
142. A TORNADO PASSING THROUGH A TOWN . . . 189
143. THE COAL AND IRON FIELDS OF EASTERN UNITED STATES 191
144. POPULATION MAP OF NORTH AMERICA . . . 193
145. THE CHIEF MANUFACTURING AREA IN NORTH AMERICA 194
146. IRON ORE DOCKS AT DULUTH 196
147. MAP OF NEW YORK 197
148. THE SKYSCRAPERS OF MANHATTAN, NEW YORK . . 198
149. THE GREAT PORTS OF EASTERN UNITED STATES . 200
150. THE CAPITOL, WASHINGTON 202
151. IN THE STOCKYARDS, CHICAGO 203
152. AIR VIEW OF BUFFALO 204
153. IN THE FORD FACTORY, DETROIT 205
154. 'WESTERN EUROPE HAS VERY MILD WINTERS' . . 211
155. THE CURRENTS OF THE NORTH ATLANTIC . . . 212
156. BRITISH ISLES—POPULATION 214
157. COAL-FIELDS OF THE BRITISH ISLES 216
158. HALIFAX, YORKSHIRE, FROM THE AIR 217
159. THE DOCKS, LIVERPOOL 218
160. HARVEST-TIME IN SUSSEX 219

CHAPTER I

INTRODUCING SOUTH AMERICA

EXPLORING THE MAP

In stories of hidden treasure, we usually find that a map is the key to wealth. In geography the map is the key to knowledge. Whenever we wish to learn about some part of the earth's surface, we should begin by studying maps. Let us then see what the atlas can tell us about South America. We notice immediately that it is roughly triangular in shape; that it lies mostly south of the Equator; and that it is nearly all within the tropics, though the narrow part of the continent stretches as far south as Britain is north of the Equator.

A political map shows us that only a very small part of it (Guiana) is ruled by any outside power. In this it is very different from Africa, which is mainly under the control of European countries. All the countries of South America, with the exception of the Guianas, are republics. They are drawn separately in fig. 1, with the letters of their names written in wrong order. Trace the outline of South America from this map, then try to fit each state into its proper place, and write out its name correctly. This may be done on the tracing paper itself, or the various countries may be traced on to cardboard, and then cut out and fitted together as a jig-saw puzzle.

The physical map shows that the continent is made up of three great masses of highland, with three great plains between them. In the west are the mighty Andes, not a single mountain chain, but a great belt of mountains several

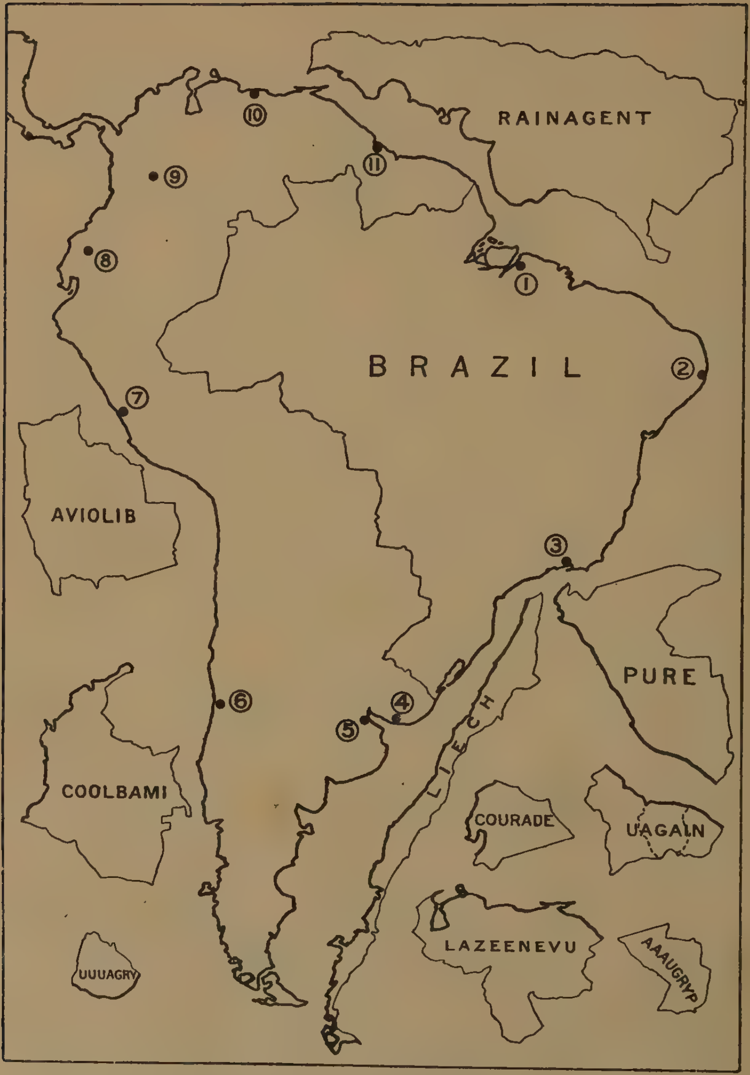

FIG. I. PUZZLE MAP OF SOUTH AMERICA

The numbers indicate the positions of important towns hundred miles wide. In the north-east is the plateau called the Guiana Highlands, and in the east is the Brazilian Plateau. Between these masses of highland are three areas of lowland: the Orinoco Basin, the Amazon Basin, and the Parana-Paraguay Basin. It is interesting to notice that these rivers with their tributaries form an almost continuous waterway from north to south. Begin at the mouth of the Orinoco and trace the river nearly to its source. Here you will find the Casiquiare Channel, which leads to the Rio Negro. (It is actually possible to sail in a canoe from the Orinoco to the Negro.) Now trace the Negro down to the Amazon, then go up the Madeira and the Guapore. From the source of this latter river it would be possible to carry a canoe to the Paraguay, and sail down that river to the Rio de la Plata.

Of course, such a journey as this would be almost impossible in practice, on account of lack of food and the hostility of wild tribes; but it is a good example of the fun to be had from 'exploring the map.'

SOUTH AMERICA AS THE HOME OF MAN

In our harvest hymn we give thanks for 'the warmth which swells the grain, the breezes and the sunshine, and soft, refreshing rain'; knowing full well that without these gifts of Nature we should not have sufficient food. But over the greater part of South America, Nature seems to have been too lavish with some of these gifts. Find, for example, the great forest region of the Amazon Basin. Here the trouble is that there is so much rain and so much sunshine, that trees and weeds and undergrowth prevent men from growing crops successfully.

Look, too, at the thinly populated basin of the Orinoco, and at the Brazilian Highlands. Here the trouble is that the rainfall is irregular; during the winter half of the year

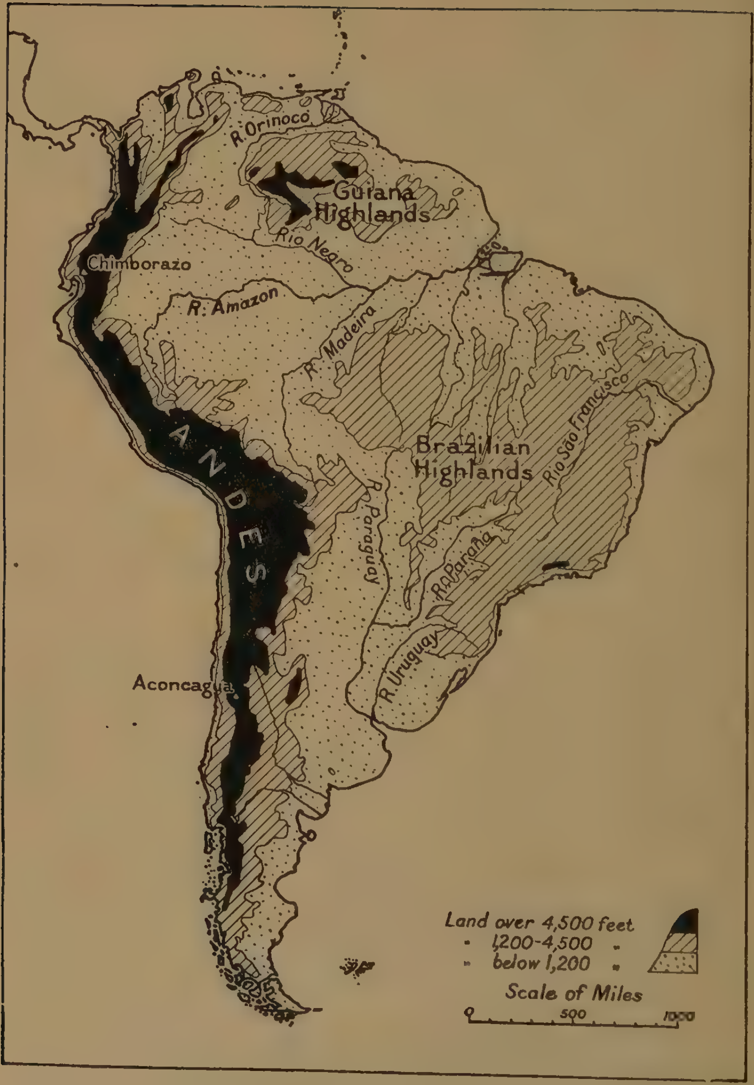

FIG. 2. SOUTH AMERICA—PHYSICAL

it is so warm and dry that nothing will grow; while in summer it is too hot for comfort, and there are frequent floods.

In other parts of the continent Nature seems to have been very niggardly, for there is a long strip of land, running nearly parallel to the west coast, which has so little rain that farming cannot be carried on; indeed, parts of this desert get no rain at all for five or six years running.

Can we wonder, then, that when white men first went to South America they found the native Indians living a very primitive life, and that, with the exception of the Incas, who ruled the high, cool basins of the Andes, they had made very little progress towards civilization?

Yet the white man found the continent to be very rich in some ways. The mountains hold great stores of gold and silver and precious stones, and for a hundred years or more a constant stream of these precious commodities flowed from South America to Europe.

In modern times, too, men have found that certain parts of the continent are among the best farming lands in the world. The pampas, or temperate grasslands, now support vast herds of cattle and flocks of sheep, and produce great quantities of wheat and other cereals; south-eastern Brazil supplies nearly half the world's coffee; and the tropical north-east sends us a good deal of cocoa. In fact, so varied are the products of South America, that, in spite of all the drawbacks mentioned above, it is certain that the continent has a great future before it. For this reason it is, like Australia, sometimes called 'the Continent of Opportunity.'

A GLIMPSE OF HISTORY

Five hundred years ago the civilized world knew nothing of America, or indeed of southern Africa or Australia. It was, of course, **Columbus** who, in 1492, rediscovered America, after its discovery by the Vikings had been long forgotten, though he thought that the land he had reached was part of the continent of Asia.

Within a very short time after his discoveries, however, Spaniards and Portuguese had explored the coasts of South and Central America, and claimed the lands for their respective countries.

Between the years 1499 and 1509, the Spaniard, Vicente Yañez **Pinzon**, who had commanded one of Columbus's ships, discovered the mouth of the Amazon, and sailed along the coast of what is now called Brazil. In 1513, **Balboa** crossed the Isthmus of Panama, discovered the Pacific Ocean, and solemnly proclaimed it a Spanish possession. In 1520 **Magellan**, in the service of Spain, discovered the straits now named after him, at the southern end of the continent, and so opened up a sea route to the west coast.

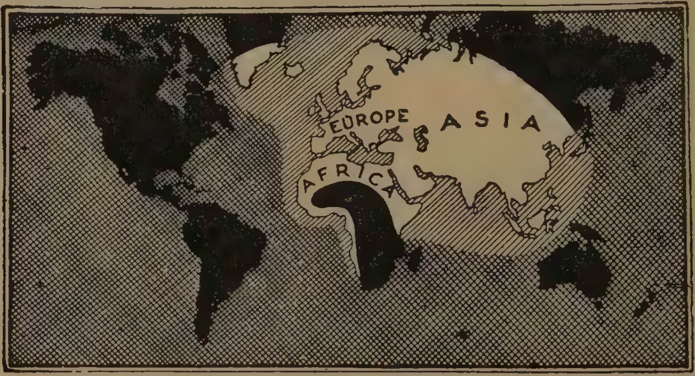

FIG. 3. THE WORLD AS KNOWN BEFORE THE DISCOVERIES OF COLUMBUS

Then began a period of amazing conquests: **Pizarro**, with a handful of followers, conquered the Inca Empire, and so brought all the western side of South America under Spanish rule; **Cortez**, about the same time, subdued the Aztecs, and so added Mexico to the Spanish territories.

The Portuguese, meanwhile, had claimed all the lands to the east of a north-to-south line drawn through the mouth of the Amazon. Thus, practically the whole continent was divided between the two great powers, Spain and Portugal.

For about 300 years the colonies were ruled by their mother countries, though neither Spain nor Portugal could spare men enough to colonize the land properly. The Spaniards, indeed, hardly tried to do so. They had only two objects in view—to get gold and silver, and to compel the natives to accept Christianity. They often pursued these aims with great cruelty, and hundreds of thousands of the Indians died of the harsh treatment they received.

Early in the nineteenth century the Spanish colonies rebelled, and established themselves as independent republics. In 1822 the Portuguese colonies followed suit, but instead of becoming separate countries, they joined together as one great state, Brazil. This was for many years an independent kingdom, but in 1889 it became a republic.

EXERCISES

1. Read the biography of one of the Spanish explorers or conquerors mentioned in this chapter, and be prepared to give to the class an account of one interesting incident in his life.

2. On an outline map of South America draw a triangle, whose sides follow the coast as near as possible. Using the scale on the map, find the length of each of the sides.

On the same map draw as large a circle as possible, without including any part of the sea.

3. Which is the smallest republic in South America? Which is the largest? Which is the longest? Which is the narrowest? Which is the highest? Which has most sea-coast in proportion to its area? Which have no sea-coast?

4. Make 'jumbled-letter' puzzles from the names of six important South American rivers. Now change maps with your neighbour and try to solve his puzzle.

CHAPTER II

BRAZIL

THE AMAZON BASIN

If we had six weeks holiday and £300 to spend, we could have a thrilling voyage in an ocean liner, across the Atlantic, and up the Amazon for a thousand miles and more, into the very heart of South America. On our way we should call at Lisbon and the Madeira Islands, and then continue in a south-westerly course for 3,000 miles. Even before sighting the shores of South America we should make the acquaintance of the mighty river Amazon, for its muddy waters are distinguishable in the sea more than 200 miles from its mouth.

Our first port of call in the New World would be **Belem,** or **Para,** as it is sometimes called, situated nearly 100 miles up the estuary of the Amazon. This is a finely built city with over a quarter of a million inhabitants. It was a very busy port in the days when nearly all the world's rubber was shipped from it; but now it is much less prosperous, and some of its streets are covered with grass.

North of Belem, and between the two main branches of the Amazon delta, is the island of Marajo, the greater part of which is low and swampy, though in the east are grassy plains on which nearly half a million cattle graze.

A few hours after leaving Belem we should enter the 'Narrows,' a succession of channels winding between forest-clad banks which are often no more than twenty or thirty yards from each side of the vessel.

Beyond the Narrows the channel opens out again, so that we seem to be sailing on an inland sea rather than on a river. Even in time of low water the river has an average width of five to six miles, and when in flood it is often more than thirty miles across. In spite of this great width, very skilful pilots are needed, for the river is beset with many mudbanks and shallows.

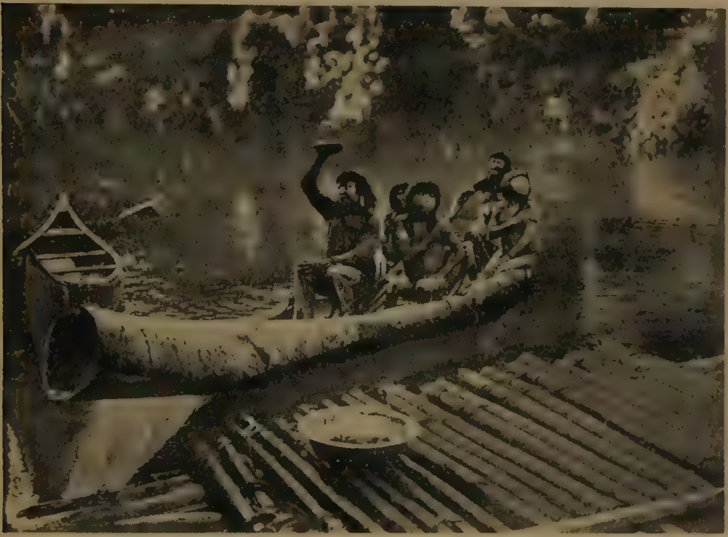

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FIG. 4. NATIVES IN THEIR BARK CANOE ON THE AMAZON

Manaos, the highest port which can be reached by ocean steamers, is situated not on the main river, but eight miles up the tributary river Negro, and more than 1,000 miles from the ocean. From Manaos we could make many interesting expeditions up the rivers and into the forests. We should, no doubt, be taken to one of the nearby lagoons on which grows the gigantic Victoria Regia water-lily, whose saucer-like leaves are often six feet across, while its flowers, which change from white to crimson, are more than a foot across.

Fishing expeditions, too, would be of great interest, particularly if we could have a hand in catching a *pirarucu*—the largest freshwater fish in the world, specimens of which weigh up to a quarter of a ton.

Bathing, however, is not safe in the waters of the Amazon and its tributaries, for they are infested with small but vicious alligators, as well as by fishes with jaws like steel traps, capable of biting fingers and toes clean off, and by sting-rays which cause swellings so severe that they incapacitate a man for several weeks.

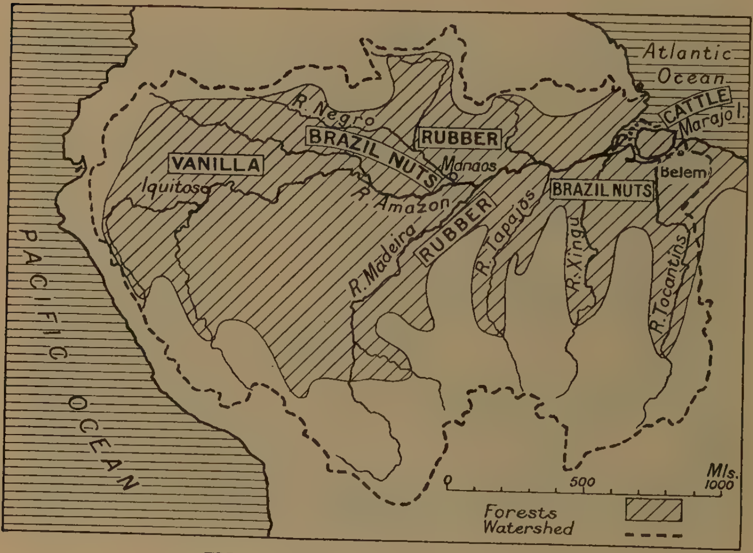

FIG. 5. THE AMAZON BASIN

THE PEOPLE AND PRODUCTS OF THE AMAZON BASIN

The Amazon Basin is nearly as thinly peopled as the Sahara Desert. This is partly because it is difficult to get sufficient food, either by cultivating the land or by hunting, and partly because the original native inhabitants were nearly wiped out by disease and ill-treatment by white men.

Here and there, however, on the banks of the main river and its innumerable tributaries we should see large huts, built of planks and raised on piles. These are the headquarters of groups of rubber collectors. The actual work of rubber-gathering is carried on by Indians who are brought from other parts of Brazil. They live in the midst of the forest in poor little shelters constructed of the bark of a

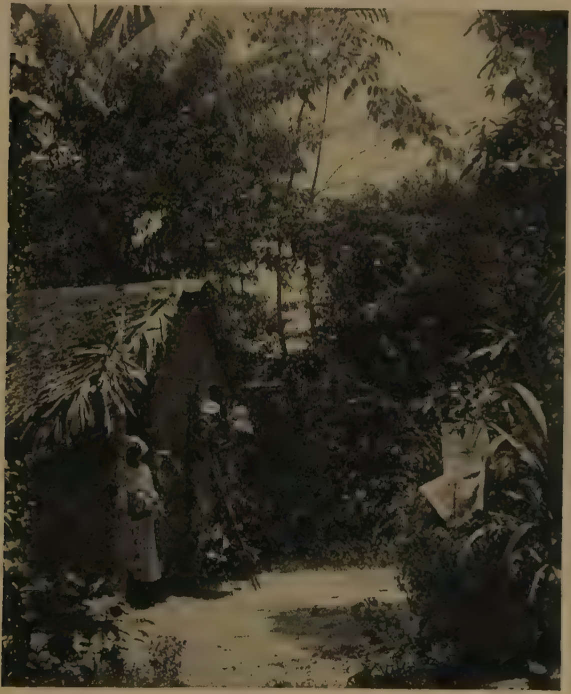

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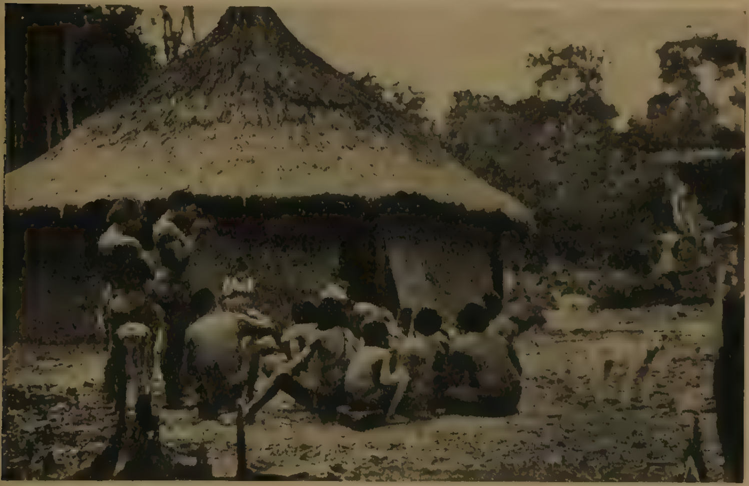
FIG. 6. HUT IN THE AMAZON FOREST

certain palm-tree. Each day the rubber collector must visit one to two hundred rubber-trees, to which paths have been made through the forest, and collect the rubber-sap which oozes out from gashes he makes in the trunks. Having collected two or three gallons of sap, he returns to his hut, makes a fire of palm-nuts, and pours the sap little by little over the end of a pole which is held in the smoke. This causes the sap to set hard, forming a ball of raw rubber. Day by day more sap is added to the ball, until it weighs one hundred pounds or more.

Brazil used to be the world's chief source of rubber; now nearly all our natural rubber comes from Malaya and other parts of south-eastern Asia, where the trees are carefully cultivated in plantations. This plantation rubber is so much cheaper than that which is gathered from 'wild' trees, that Brazil now produces only a very small part of the world's supply. A start has, however, been made with rubber-planting in the Amazon Basin. Henry Ford, the motor manufacturer, has taken over a large tract of land at Fordlandia, six hundred miles from the mouth of the Amazon. A portion of this has been cleared, marshes have been drained, sanitary arrangements made, and food crops planted for the support of the workers.

Rubber is being planted on only a part of the estate, and though hundreds of thousands of trees have been planted the estate will never be able to produce more than a small fraction of the rubber needed in the world.

Of the original native inhabitants of the Amazon Basin we should probably see nothing on a voyage up the river, as they hide themselves in the remotest parts of the forest. Their settlements are always connected to the river by a forest path, but this is so tortuous and so beset with obstacles that only the natives themselves can traverse it. If, however, we could gain the friendship of one of the natives, he might take us to the forest clearing. Here we should see an enormous house, in which the whole tribe—maybe two or three hundred persons—live under the one roof. The middle of the floor is reserved as a dancing space, one side is reserved for the chief, and the other sides are allotted to various families. Each family has its own fire, around which the hammocks are slung at night, but there are no partitions, no fireplaces, no chimney, no windows.



E.N.A.

FIG. 7. A SMALL COMMUNAL HUT IN BRAZIL

The men of the tribe spend their time hunting and fishing, while the women work in the plantation which surrounds the tribal house. The chief crop is a root called **manioc.** The outer skin of some varieties of manioc contains a deadly poison, prussic acid, so the natives carefully scrape off the skin, then grate the fleshy part to make it into flour.

Every few years the women find that their plantation no longer yields good crops, and the men find that their hunting is less and less successful. So, like the Fangs of the Congo Basin, the whole tribe moves off to another part of the forest, where a new clearing is made, and a new tribal home built.

In the very depths of the Amazon forests there are still a few small tribes of nomadic Indians, whose mode of life is very similar to that of pigmies of the African forest. They live entirely by hunting, fishing, and collecting wild fruits, roots, and edible leaves.

> Sometimes they make for themselves small shelters of the most rude and elementary type, and during the dry season they will come down and camp on the beaches. At other times they wander carelessly through the forest, throwing themselves down at night, naked and unprotected, among the leaves and ants, sleeping even through the showers of rain.[1]

EXERCISES

1. Draw a sketch-map to show the route from England to Manaos.
2. Give as many reasons as you can for the scantiness of the population in the Amazon Basin.
3. Draw a diagram-map of (*a*) the land occupied by a tribe of Amazon Indians; (*b*) the district worked by a rubber gatherer. (If necessary read again the description given in this chapter.)
4. Using a piece of thread, and the scale on the map, find the length of the River Amazon. Compare this with (*a*) the distance from Liverpool to Belem (Para); (*b*) the smallest width of the Atlantic Ocean.

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[1] K. G. Grubb, *Amazon and Andes*.

CHAPTER III

BRAZIL (*continued*)

THE COAST LANDS

THE most striking thing about Brazil as seen on a map is its great size. It is the fifth largest country in the world, being surpassed only by Russia, China, the United States, and Canada. It is really made up of several states, and its correct title is 'The United States of Brazil.' As may be expected in a country of this size there are great contrasts between the various parts. Most of the people live on or near the hot, wet, narrow forest-clad plain which fringes the east coast, and nearly all the large towns of Brazil are situated on this coast.

Recife (sometimes called Pernambuco) is more than a thousand miles from Belem. It is built partly on the mainland, partly on a peninsula, and partly on an island between the two. There are, therefore, so many waterways within the city that it is sometimes called 'the Venice of South America.' Recife is the nearest Brazilian port to Europe and is an important station on the trans-Atlantic air route from Dakar in French North-West Africa.

The chief export is cane-sugar, which is produced on innumerable plantations in the State of Pernambuco.

Bahia, the fourth largest city of Brazil, is a little more than a day's steaming south of Recife. The word 'Bahia' means 'Bay' and the full name of the city is São[1] Salvador da Bahia. The chief exports of Bahia are sugar, cocoa,

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[1] Pronounced *sown*.

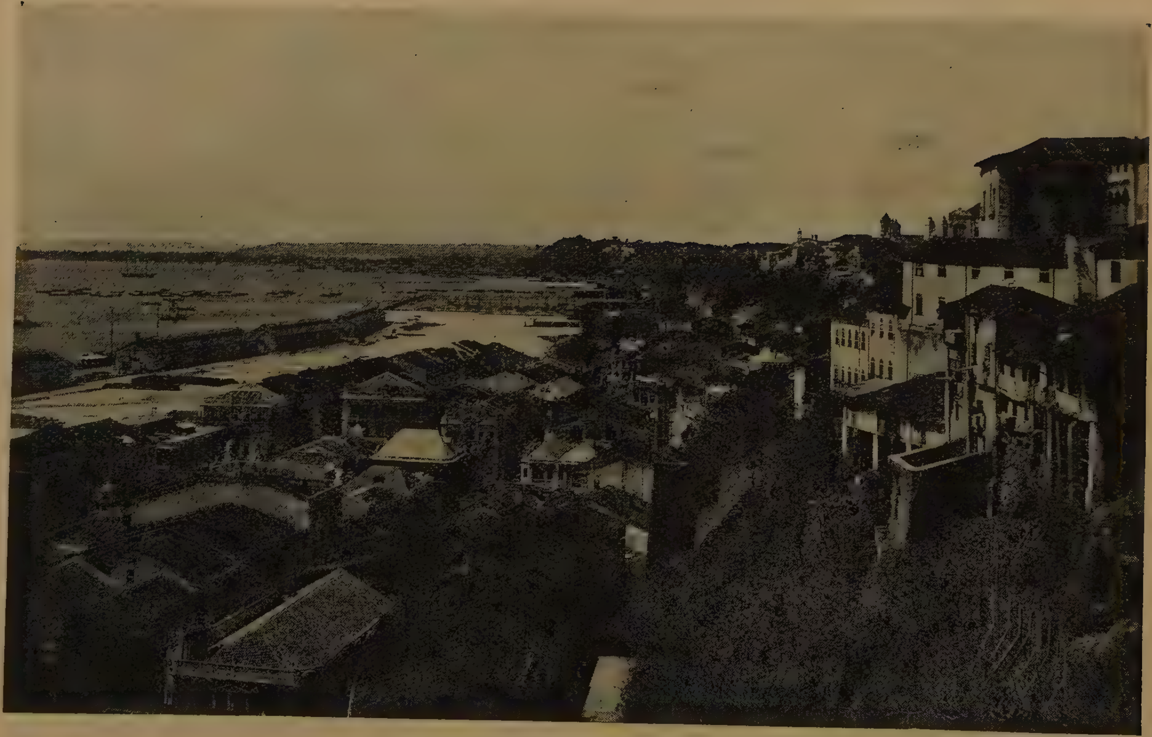

Fig. 8. BAHIA: BUSINESS QUARTER AND HARBOUR

E.N.A.

and tobacco, which are produced on the hot, wet, coastal plain around the city.

Rio de Janeiro. When the Portuguese first sailed along the coast of Brazil, they discovered on 1st January 1502 a deep, landlocked inlet, which they imagined to be the estuary of a great river. They therefore named the bay 'Rio de Janeiro,' which means 'River of January.' As a matter of fact, no river of any size enters the bay, but the name was taken by the city which grew up there.

The inhabitants of 'Rio' claim that both the harbour and the city are the finest in South America. The entrance to the harbour is through a narrow channel between two granite headlands which are the extremities of the peninsulas enclosing the bay. The city, which lines the southern shore of the bay, forms a broad band of pure white, set between the deep blue of the bay and the dark green slopes of the forested mountains behind. The most remarkable feature of the bay is the Sugar Loaf Mountain, which rises sheer from the water's edge to a height of 1,300 feet. The summit may be reached by an aerial ropeway. (See figs. 9 and 10.)

Rio de Janeiro is the capital, the largest city, and the chief seaport of Brazil. At its finely equipped wharves may be seen vessels from all parts of the world taking aboard cargoes of coffee, sugar, oranges, hides, and mineral ores, or unloading machinery, cotton goods, motor cars, and other manufactured articles.

Santos is reached from Rio by a voyage of twelve to sixteen hours. It is situated on a low, palm-studded plain which in the rainy season is quite cut off from the mainland. It is the chief port for the State of São Paulo, which is by far the richest and most progressive part of Brazil.

The people of São Paulo depend chiefly on **coffee** for a livelihood; planters, labourers, merchants, clerks, railwaymen, get their living directly or indirectly through the

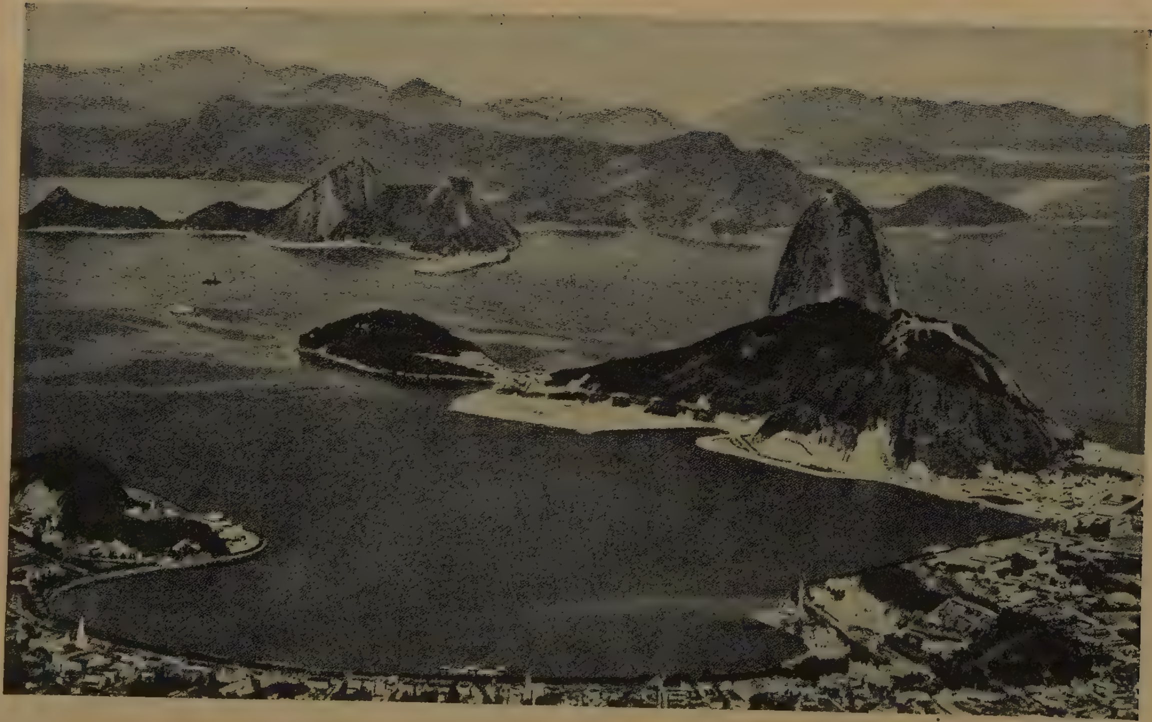

FIG. 9. PANORAMIC VIEW OF RIO DE JANEIRO HARBOUR

Nelson Line

cultivation, transport, and sale of coffee. Nearly half the world's supply of coffee is produced in this state alone.

Let us imagine we are able to pay a visit to the coffee lands. Disembarking from the ocean steamer at the coffee port of Santos we see ahead the steep edge of the Brazilian Plateau, towering up like a giant range of mountains. It seems impossible that any railway can climb this mountain wall, but as we proceed on our journey we shall see the clever way in which the engineers solved the problem. After a fairly level stretch our train comes to a hill so steep that it would be difficult to cycle up it. Up this slope the train is hauled by cables attached to a stationary engine at the top. On our journey to São Paulo we should encounter five of these 'inclined planes' as the specially steep sections are called.

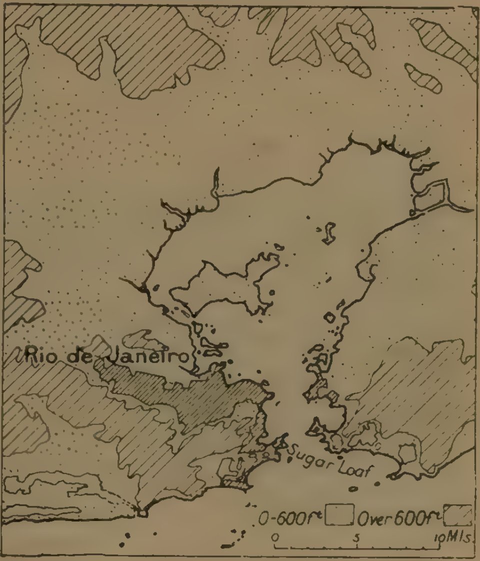

FIG. 10. THE SITUATION OF RIO DE JANEIRO

São Paulo, the 'coffee capital' of the world, is a finely built city with over two million inhabitants. From the outskirts of the city the great coffee estates or *fazendas* stretch for scores of miles inland. These *fazendas* are usually very large; some indeed have an area of forty to fifty square miles, and contain four or five million coffee bushes.

Most of the workers on the estates are Italian immigrants.

The owner provides them with cottages and garden plots rent free, and pays them an agreed price for weeding and pruning the coffee bushes, each person being expected to look after about two thousand trees. At harvest time they are paid so much a bushel for the coffee berries they pick. In addition they work for wages on the estate for about fifty days each year, attending to such other crops as bananas, maize, and beans. In their spare time they grow on their own plots such food crops as they need.

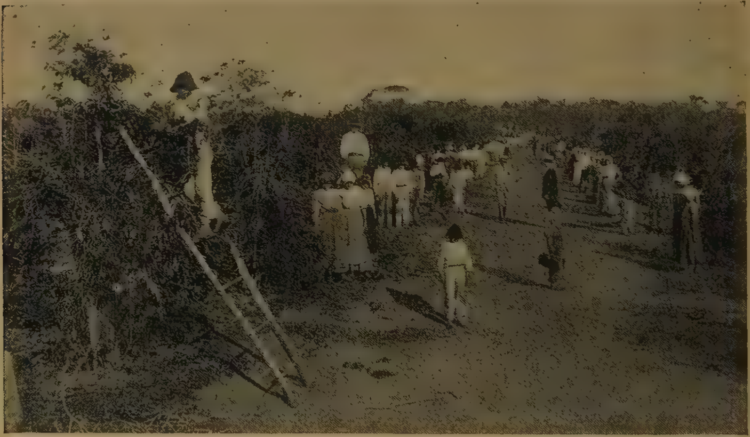

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FIG. 11. COFFEE PICKING IN THE STATE OF SÃO PAULO

At one time São Paulo produced far more coffee than could be sold, and large quantities were burnt so that a fair price could be obtained for the rest. One good result of this glut of coffee has been that many planters have seen the danger of having all their eggs in one basket, and have begun to grow additional crops such as oranges, cotton, and bananas. In recent years, too, many factories for the making of cotton goods, clothing, paper, etc., have been established in São Paulo and Rio de Janeiro, which have become the chief manufacturing centres of South America.

THE INTERIOR PLATEAU

If we were to travel across central Brazil from east to west, we should pass through three different types of country.

(1) The narrow **COASTAL PLAIN**, whose hot, wet, climate favours the cultivation of cocoa, sugar, and tobacco.

From this the land rises very steeply to:

(2) The **EASTERN PLATEAUS**, where, as in the State of São Paulo, the climate is ideal for cultivation of such crops as coffee, oranges, and cotton.

Westward again the land slopes down gradually to:

(3) The **INTERIOR PLATEAU**, which lies between the Amazon and the Parana rivers. The greater part of this plateau is wild and desolate. On the *campos*, or tropical grasslands, there are many large ranches, over which roam herds of half-wild cattle. The animals bring very little profit to their owners, as the ranches are in some cases a thousand miles from the coast and there are very few roads or railways.

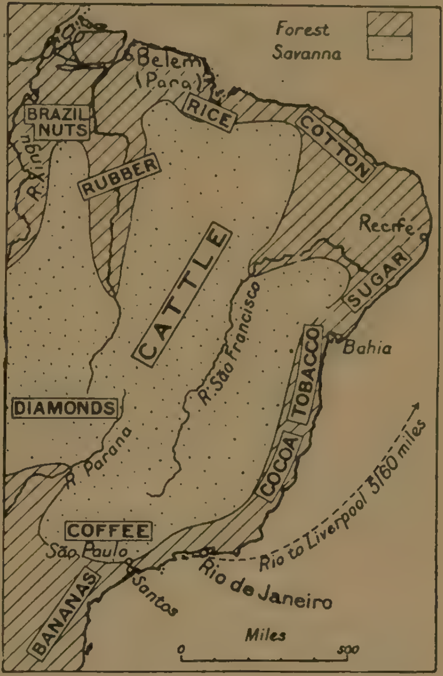


FIG. 12. VEGETATION AND PRODUCTS OF EASTERN BRAZIL

There are a few freezing works in this region, which sends some frozen meat to Britain, though most of the beef is preserved by salting and sun-drying, for home use and for export to other South American countries. In the extreme south of Brazil, where the climate is milder, many modern meat-packing plants have been established.

In many parts of the central plateau there are rich mineral deposits, and during the Second World War large quantities of iron and manganese were exported to the U.S.A. A large steel plant has been erected near Rio de Janeiro.

Diamantina produces some very fine diamonds and **Minas Gerais** prduces a little gold.

EXERCISES

1. Most of Brazil's exports consist of foodstuffs and raw materials. Write down three commodities in each of these classes.

2. Though Brazil is the fifth largest country of the world, it conducts only 1·3 per cent of the world's trade. Give reasons why this is so.

3. Draw a sketch-map of Brazil showing the chief natural regions, viz.: the Amazon forests, the eastern coast lands, and the interior plateaus.

Write down from memory some of the chief products of each of these regions.

4. Map the following route, showing dates of arrival or departure.

London Sail Sat. Apr. 2	*Vigo* Sail Tues. Apr. 5	*Lisbon* Sail Wed. Apr. 6
Las Palmas Arr. Fri. a.m. Apr. 8	*Tenerife* Arr. Fri. p.m. Apr. 8	*Rio de Janeiro* Sail Mon. Apr. 18
Santos Sail Tues. Apr. 19	*Montevideo* Arr. Th. Apr. 21	*Buenos Aires* Arr. Fri. Apr. 22

CHAPTER IV

THE BASIN OF RIVER PLATE

ARGENTINA

The name Argentina means the 'Land of Silver.' It was so called by the early Spanish explorers because they hoped it would prove to be rich in that precious metal. They were disappointed, for Argentina has never produced much of any kind of mineral; but she has something of far more value than silver and gold—rich, fertile plains, which produce great harvests of wheat, and support vast herds of cattle and flocks of sheep.

She has, therefore, become the wealthiest of all the South American republics.

Buenos Aires, the capital and chief port, is the biggest city in the southern hemisphere, and one of the largest cities in the world. It is situated near the head of the estuary of La Plata

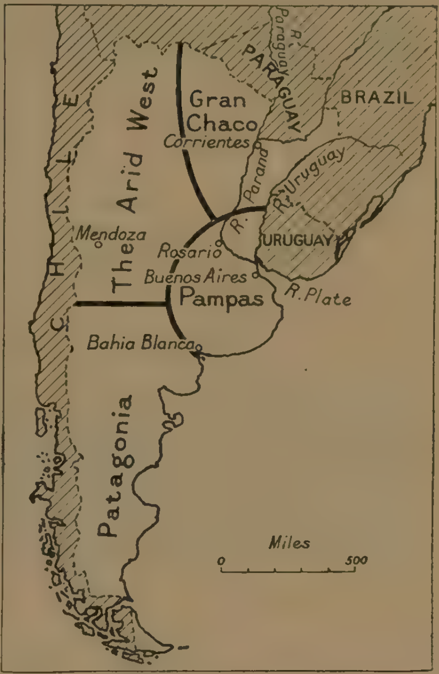


FIG. 13. NATURAL REGIONS OF ARGENTINA

('River of Silver'), where that vast semi-inland sea narrows to a mere thirty miles or so.

The name of the city means 'Good Airs,' or 'Healthy Breezes,' but that must not be taken to mean that it has a very delightful climate. On the contrary, it is almost unbearably hot in summer, the more so because it is built on a dead-level plain only a little above sea-level. Yet even then the people do not dress in white suits and sun helmets, probably because there are sudden changes of temperature, which cause danger of catching cold.

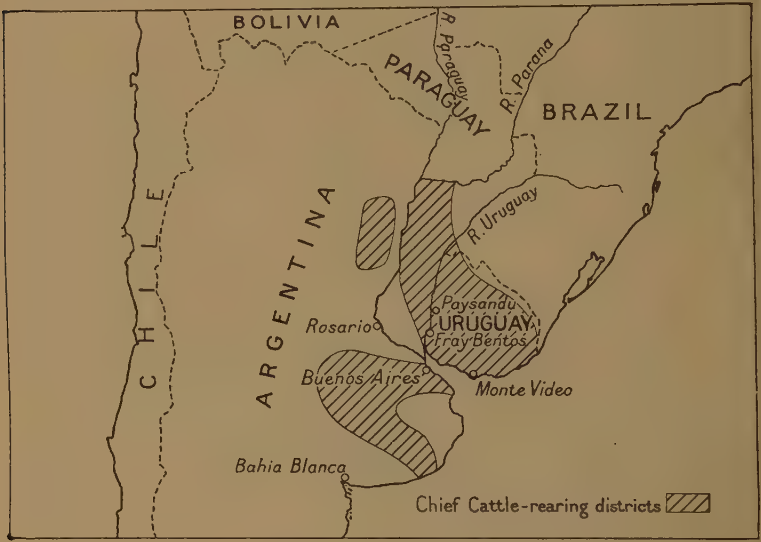


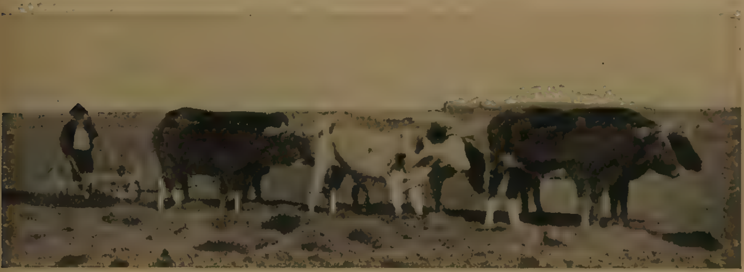
FIG. 14. THE CATTLE LANDS OF ARGENTINA AND URUGUAY

THE NATURAL REGIONS OF ARGENTINA

Like Brazil, Argentina is so large that it includes several different types of country. The chief 'natural regions' are:

(1) The Pampas, (2) Patagonia, (3) The Arid West, (4) The Gran Chaco. (See fig. 13.)

THE PAMPAS. When Spaniards first settled on the Pampas they established great ranches over which roamed at will vast herds of cattle tended by half-breed *gauchos*, or cowboys. In those days the cattle were valued only for their hides, the meat being usually left to rot.



Nelson Line

FIG. 15. PLOUGHING WITH OXEN, ARGENTINA

But when freezing works were introduced in 1883, the ranchers began to pay more attention to the quality of the beef, and to take much greater care of their cattle. Now there are very few of the great unfenced ranches left.

Nelson Line

FIG. 16. HARVESTING SCENE ON THE PAMPAS

The modern *estancia*, or cattle farm, is divided by strong wire fences into fields of fifty to one hundred acres each, and as there are few streams or pools, windmill pumps are erected to provide drinking water for the cattle. In each field there is usually a hut for the labourers, whose work is to look after the fences and animals in that pasture. Other workers on the estate live in mud-walled, rush-roofed huts which line unpaved streets, thick with dust in the dry season and with mud after a wet period.

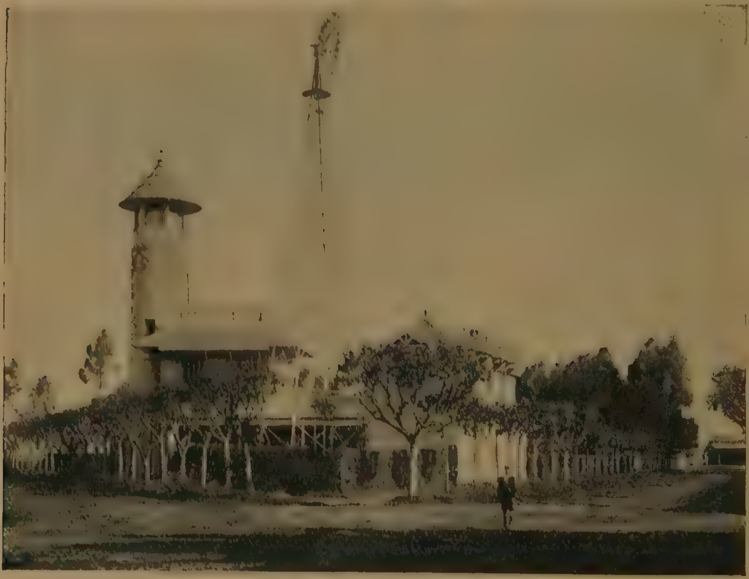


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FIG. 17. AN ESTANCIA ON THE ARGENTINE PAMPA

The modern gaucho, or cowboy, is no more picturesque than the modern estancia. He does not now use the lasso, or dress in a gaudy poncho, or decorate his horse with silver-mounted trappings.

He wears a black short coat; grey trousers pushed into the tops of his black boots; a black felt hat. A white handkerchief flutters from the back of his neck. His stirrups are wooden, and he rides the recado, the country saddle that is moderately peaked, and is heavily padded with rugs and skins; and he hits his horse, when it plunges at the sight of the train, severely upon the nose with the rebenque, a heavy whip with a broad flat lash, that delivers a slap rather than a cut.[1]

The cattle farmer of the pampas grows great quantities of **alfalfa,** a plant belonging to the clover family. This not only makes very nutritious hay, but also improves the land to a remarkable degree. Formerly the rancher would let off part of his land rent-free to poor Italian immigrants, who cultivated it for a few years, growing such crops as wheat and beans and vegetables for their own use, and then left the land planted with alfalfa. Both sides benefited by this bargain; the colonist got free land for a few years, and the owner had his poor land made fertile at no cost to

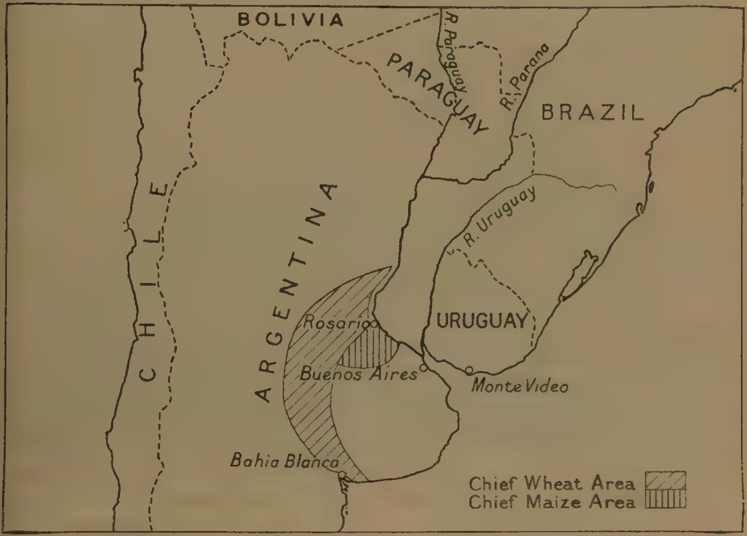

FIG. 18. THE GRAIN LANDS OF ARGENTINA

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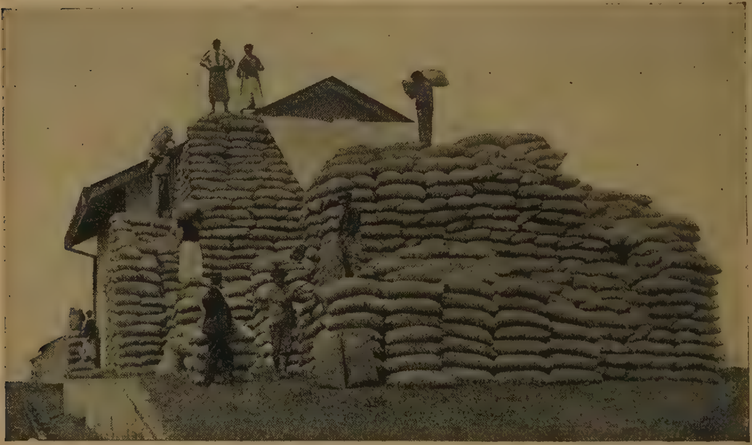
[1] L. E. Elliott, *The Argentine of To-Day*

himself. The great disadvantage of this system was that it prevented the colonists from making permanent homes. Yet it has been of great advantage to Argentina, as in this way millions of acres of nearly waste land were transformed into first-class cattle farms.

When the cattle are ready for killing they are sent to the great 'meat factories,' where the beef is chilled, frozen, canned, or made into beef extract such as Bovril and Oxo.



Ferro Carril, Oeste

FIG. 19 WHEAT AWAITING TRANSPORT, ARGENTINA

The second great industry of the pampas is wheat-growing. As will be seen from fig. 18, the best wheat lands stretch in a crescent from Rosario to Bahia Blanca. This is because the lands nearer the coast are rather too moist for wheat, while those farther away are too dry. Argentina is one of the greatest wheat-growing countries in the world; she produces as much wheat as Australia, but only half as much as Canada.

Other types of farming on the pampas are dairying, sheep-rearing (mainly for mutton), and the cultivation of linseed.

SOUTHWARD THROUGH PATAGONIA

The first stage of our journey leads us across the rich farming lands of the pampas to **Bahia Blanca**, a great wheat port. As we continue southward, the cultivated fields quickly give place to desolate, pebble-strewn plains, bare of vegetation except for occasional clumps of coarse, brown grass. This is **Patagonia**—a semi-desert region, which stretches southward for a thousand miles to the very tip of the continent.

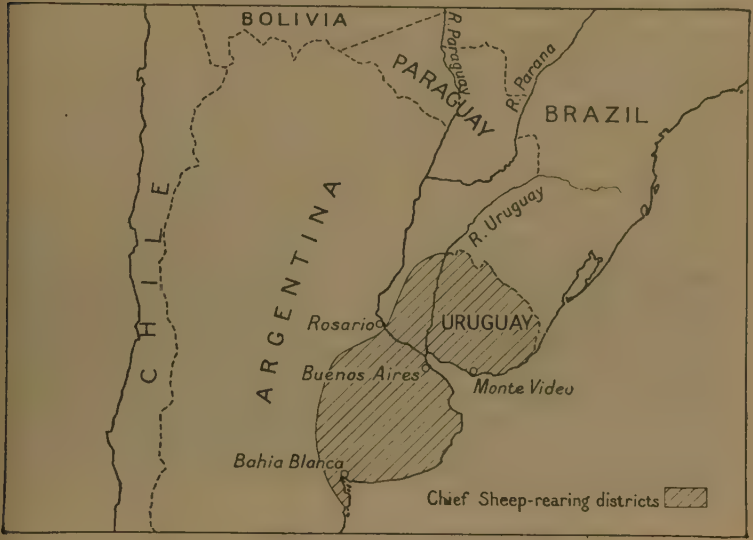
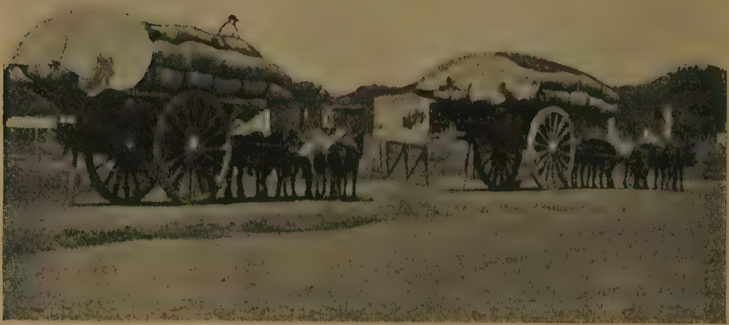


FIG. 20. THE SHEEP LANDS OF ARGENTINA

The name Patagonia means 'Land of the Big Feet.' It was so called by Ferdinand Magellan, who discovered the way through the straits which bear his name, because on the mainland he saw footprints so large tha he thought they could only have been made by a giant. Actually, however, the native Indians, like the few who still live in Patagonia, were little over six feet in height.

The great disadvantage of Patagonia is the prevalence of strong westerly winds which are very dry, as they have been robbed of all their moisture in crossing the high ranges of the Andes. Consequently there are few parts of Patagonia where trees will grow, or where crops can be cultivated.



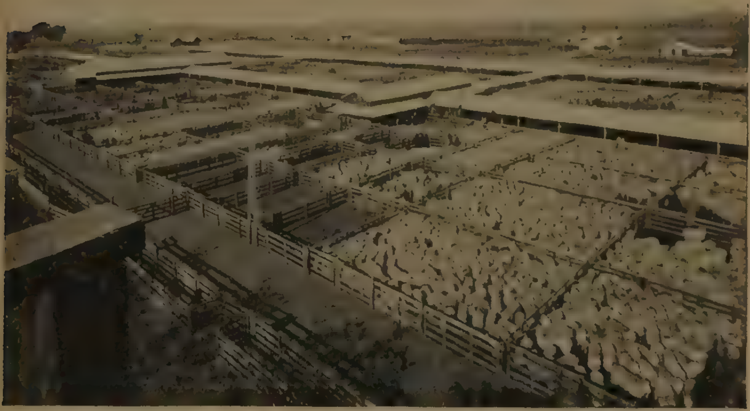
Nelson Line

FIG. 21. TAKING WOOL TO THE RAILWAY, ARGENTINA

There are, however, two river valleys where farming is successfully carried on. The first is the valley of the **Negro,** about one hundred miles south of Bahia Blanca. Here, an area of a hundred square miles is irrigated from a great reservoir made by building an embankment across the valley.

The second valley is that of the **Chubut,** two hundred and fifty miles farther south. This area is very interesting, because all its two thousand inhabitants are descended from Welsh colonists who settled there in 1865. They live chiefly by dairy-farming and fruit-growing.

Apart from these two 'oases,' Patagonia is very thinly peopled. The land is, however, good for sheep-rearing, and here, and in the neighbouring island of Tierra del Fuego, are some of the largest sheep farms in the world. The largest of all is about the size of Wales, and contains over two million sheep. It occupies the southern tip of the continent, and is partly in Argentina and partly in Chile.



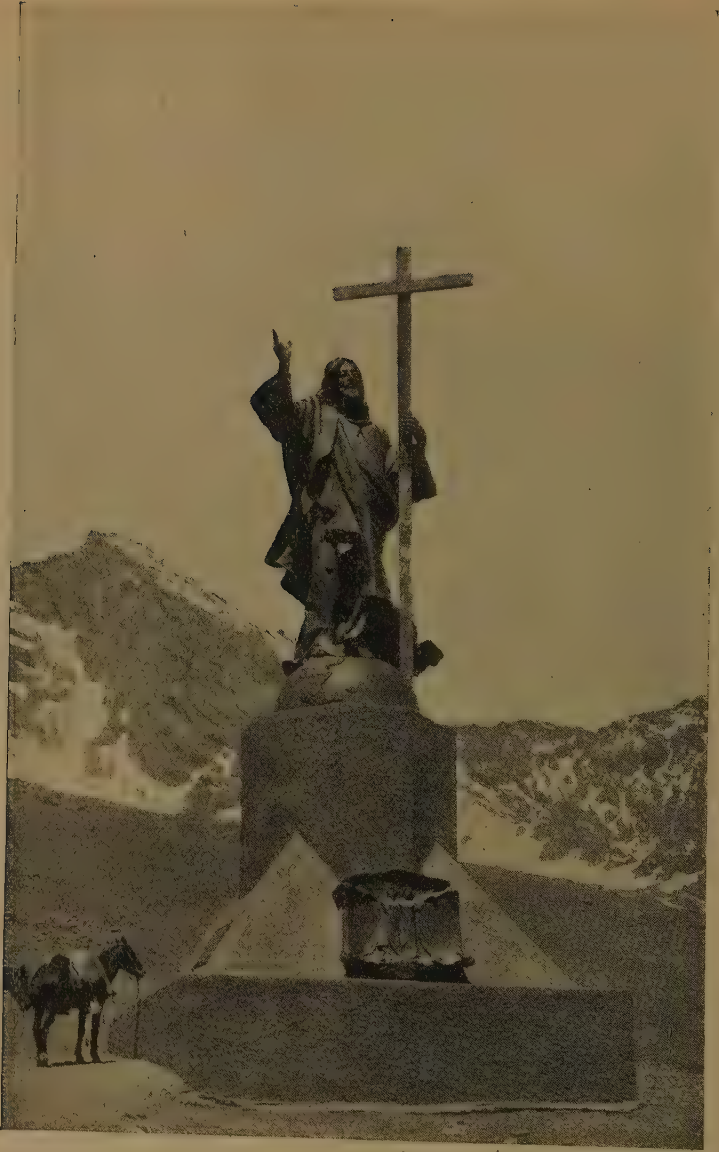
Ferro Carril Oeste

FIG. 22. SHEEP MARKET IN ARGENTINA

WESTWARD TO THE ANDES

The Argentine pampa is well served by a network of railways which centre on Buenos Aires. The more important of these is a line which runs almost due westward for six hundred miles, and formerly linked up with a Chilean railway to Valparaiso on the west coast of the continent.

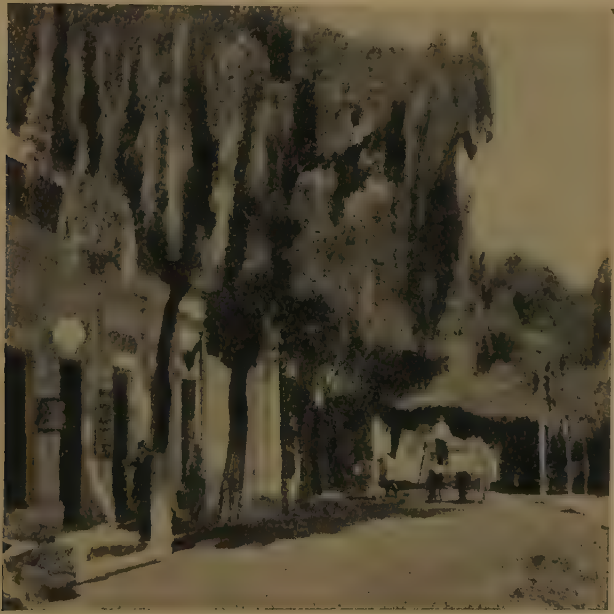
If we were to journey westward by this railway we should quickly tire of the scenery. First we should see 'leagues



Buenos Aires and Pacific Railway

FIG. 23. STATUE OF CHRIST ON THE CREST OF THE ANDES

of corn and standing maize, oceans of alfalfa, sky-blue patches of linseed, armies of browsing cattle, sheep, and horses.'[1] Then we should pass through a desolate land which has so little rain that rivers dry up, and farming is impossible. Eventually, however, we should reach **Mendoza**, an ancient city set in a great oasis, watered by streams from the Andes. This is the chief vine-growing region of Argentina, and from it wine is sent all over the country.



Nelson Line

FIG. 24. STREET IN A SMALL TOWN IN CORDOBA, ARGENTINA

Beyond Mendoza the line begins to climb the steep slopes of the Andes. The route leads through the Uspallata Pass, and near the base of Aconcagua, the highest mountain in

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[1] W. H. Koebel.

South America. Formerly the line was continued through the divide by a tunnel 11,500 feet above sea-level. This section of the line was, however, too costly to maintain and has now been replaced by a motor road. At the highest point of this road stands a statue of Christ, which was set up to solemnize a pact of perpetual peace between Chile and Argentina. In 1902 these countries were on the verge of war, but they sensibly settled their dispute by arbitration. The statue was made from metal obtained by melting down guns which the two countries had prepared for use against each other. The inscription on the monument is as follows: 'These mountains themselves shall fall and crumble to dust before the people of Chile and the Argentine Republic forget their solemn covenant sworn at the feet of Christ.'

NORTHWARD BY THE GREAT RIVER

The rivers Uruguay, Parana, and Paraguay, whose combined waters flow to the estuary known as the Rio de la Plata, are important highways of commerce. Large ocean steamers can sail two hundred miles up the Parana to the great wheat port of **Rosario.** Beyond that point we should have to take a smaller steamer, which would take us in four or five days to **Asuncion,** the capital of Paraguay.

On our voyage upstream the most interesting feature we should see would be the occasional rafts made of trunks of the famous Parana pine, a valuable timber tree which grows in the district between the rivers Uruguay and Parana. These rafts, which are large enough to accommodate fifteen to twenty men and one or two huts, are floated down the river to Buenos Aires, where they are broken up and the timber sold.

If we could leave the river, and be conducted through the thinly peopled land on each side, we should see two other interesting forest industries.

One is the preparation of **yerba-maté,** the leaves of which are used over most of South America for making a kind of tea. To prepare the leaves for the market, branches are cut from the trees and roasted over a wood fire. Then the small twigs are broken off and stacked in a great heap over a dome of branches, into which smoke from a fire made of a special kind of wood is led through an underground tunnel. When 'cured' the leaves are beaten from the stems, graded, packed, and stored in sacks to mature.

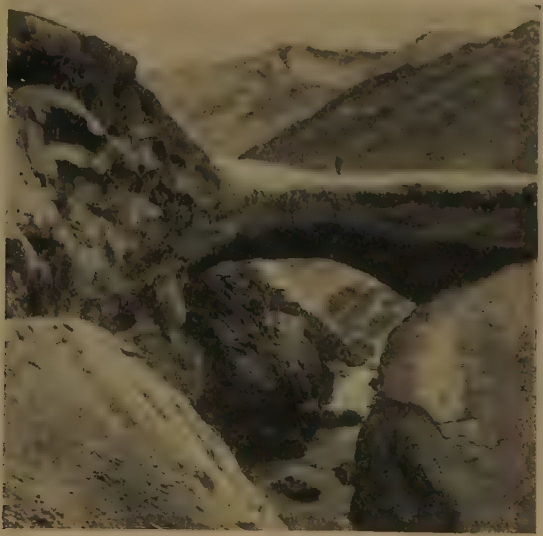

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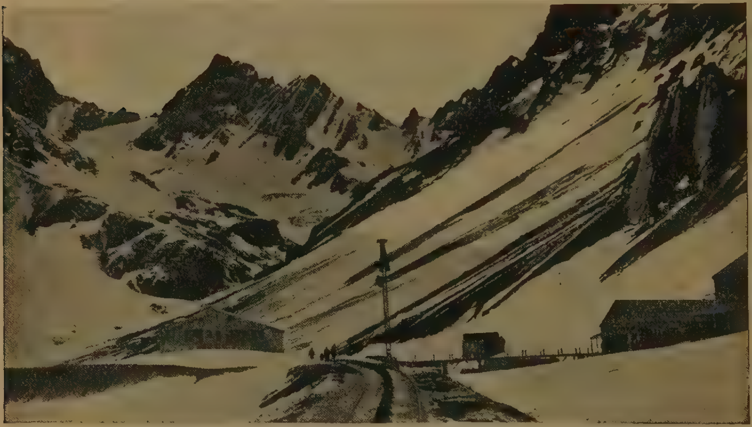
FIG. 25. PUENTE DEL INCA. A NATURAL ROCK BRIDGE ON THE ANDEAN ROUTE BETWEEN CHILE AND ARGENTINA

The other forest industry of Argentina is the making of tannin, from the wood of a tree known from its hardness as **quebracho** (break axe). The logs, which are so heavy that they will not float in water, are transported by railway from the forest to the tannin factory. Here they are torn into tiny chips by being pressed against steel-toothed wheels; the chips are then boiled five or six times, and the liquid evaporated, leaving the brown extract, which is sent to all part of the world for tanning hides.

The extreme north of Argentina is a wild and desolate region known as the **GRAN CHACO**. It is a region of swamp and forest, in some parts of which there still remain tribes of hostile Indians who wait in ambush to greet the occasional white intruder with flights of arrows. In most parts, however, missionaries and Government officials have won the confidence of the tribes, and the land is being opened up for white settlement. Two railways cross the region, one of them linking up with the newest and most southerly transcontinental railway of South America, that from Buenos Aires to Antofagasta.



Ewing Galloway, N.Y.

FIG. 26. CARACOLES STATION. THE LAST ON THE CHILEAN SIDE OF THE ANDES

URUGUAY

This little republic is bounded on the west by the River Uruguay, and on the south by the Plate River.

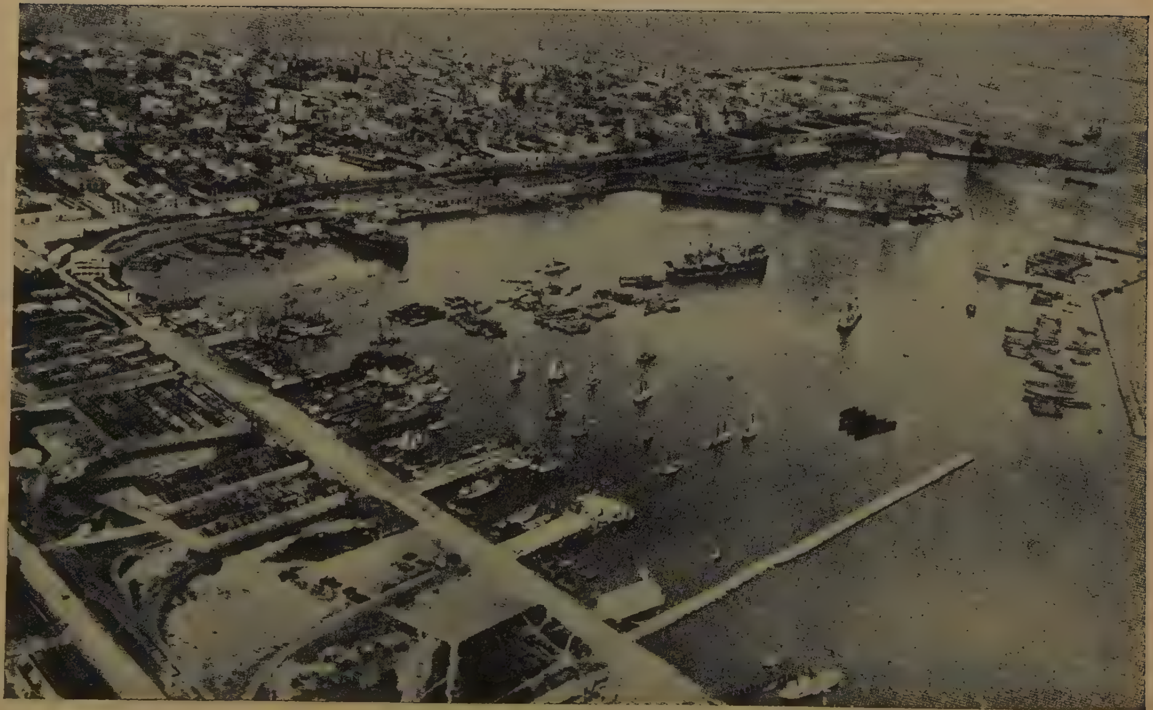
Practically the whole of its surface is natural grassland—an extension of the **pampa** of Argentina. Consequently the chief occupation of the people is stock-raising. Indeed, if all the animals of Uruguay were divided equally among the people, each family of five would have twenty-five cattle, forty sheep, and two horses. The sheep farms and cattle ranches are run on much the same lines as in Argentina, and large quantities of frozen beef, corned beef, beef extract, mutton, wool, and hides are exported. Famous centres of the meat-packing industry are **Fray Bentos** and **Paysandu**, both situated on the Uruguay River.

Montevideo, the capital, is one of the chief cities of the southern hemisphere, though it is only about a quarter the size of its 'big sister,' Buenos Aires. It is situated on the estuary of the La Plata, where a peninsula juts southward and forms a sheltered harbour. It is, of course, the chief port of Uruguay, and is also the centre from which railways spread out to all parts of the country.

PARAGUAY

This republic is situated on each side of the River Paraguay, from which it took its name. It is a very different country from its sister republic, Uruguay. In place of the rolling, grass-covered pampas of the latter country, Paraguay has vast areas of forest and jungle, and her chief wealth lies in her forest products, rather than in her flocks and herds.

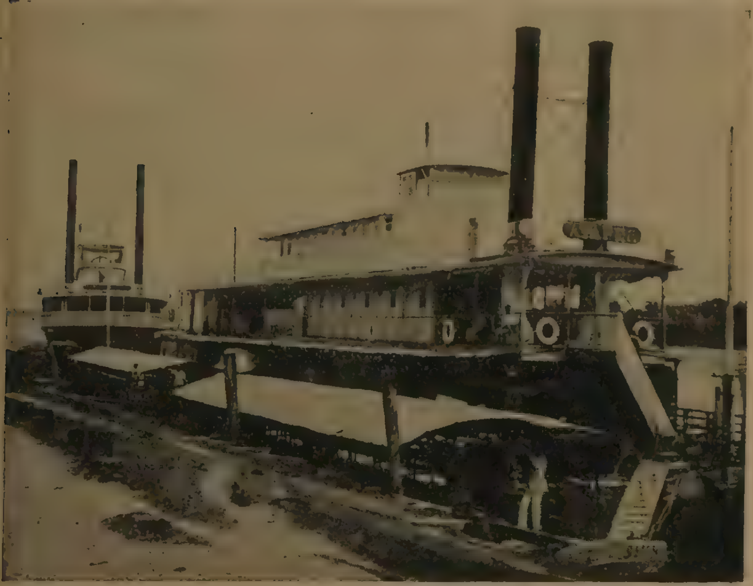
The collection and preparation of **yerba-maté** leaves is the most prosperous industry, and this is closely followed by lumbering, **quebracho** being the chief timber cut.



Nelson Line

FIG. 27. AERIAL VIEW OF MONTEVIDEO HARBOUR

Oranges can be grown more easily in Paraguay than in any other country in the world; indeed they even grow wild in the forests. About two hundred millions are exported each year to Argentina, and they are so good and cheap that if more care were taken in packing and transport they might find a ready market in Europe.



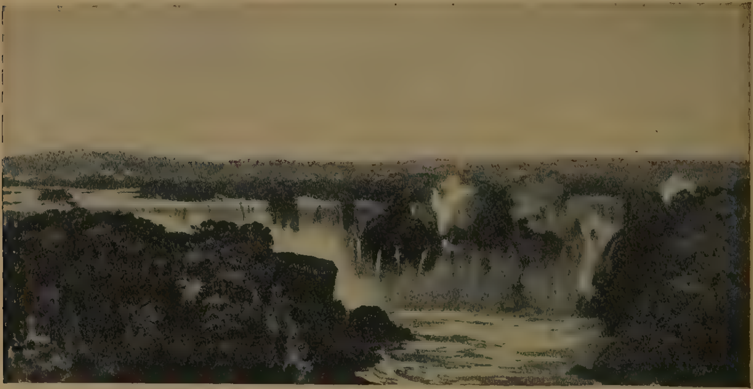
E.N.A.

FIG. 28. STEAMERS AT A LANDING STAGE ON THE PARAGUAY RIVER

Nearly all the people of Paraguay are half-breeds, with Spanish and Indian blood in their veins. They live mostly by cultivating little plots of ground in a very primitive way, and by keeping cattle. They grow only what they require for themselves, and their cattle are of such poor quality that hardly any meat is exported.

The majority of the people live in little villages which are almost hidden by the forest growth. The walls of the houses are made of mud, or of wicker-work daubed with mud-plaster. The roof is made of thatch or tiles, and is usually high-pitched so as to throw off the rain. The eaves are also brought far out over the walls, so as to protect these from the heavy rains, and at the same time provide shade from the hot sun.

The only town of any importance is **Asuncion**, the capital. It is situated on the left bank of the Paraguay River, and was founded 400 years ago by the Spaniards as a station on the 'silver route,' which led from Bolivia to the estuary of La Plata.



Nelson Line

FIG. 29. FALLS OF IGUAZU, WHERE BRAZIL, PARAGUAY, AND ARGENTINA MEET

It is the terminus of Paraguay's only railway, which runs southward into Argentina. By this line Buenos Aires can be reached in two and a half days, while by river steamer the time taken is six days.

EXERCISES

1. Though Argentina has only a third as many people as Brazil, she conducts twice as much foreign trade. Give reasons why this is so.

2. Draw a sketch-map showing the position of the following towns. (Make the dot roughly proportional to the population.)

Buenos Aires (3,500,000), Rosario (483,000), Cordoba (351,000), La Plata (175,000), Tucuman (210,000), Santa Fé (177,000), Mendoza (110,000).

3. On squared paper, draw a diagram showing the following exports from Argentina to Britain in a recent year:

Maize	£31 million
Other animal feeding stuffs	£19 ,,
Beef	£16 ,,
Mutton	£ 5 ,,
Linseed oil	£ 6 ,,

4. In return we normally supply Argentina with many of the manufactured goods she needs. Make a list of the manufactures most likely to be needed by the people of Argentina.

5. Uruguay has an average of 37 people per square mile, Argentina has 16 per square mile, and Paraguay only 9 per square mile. Give reasons for these differences in density of population.

CHAPTER V

REPUBLICS OF THE SOUTHERN ANDES

1. CHILE

THIS republic, which has a length of two thousand six hundred miles, and an average breadth of one hundred miles, has been likened to a long narrow trough which would stretch from England to Canada.

It is, indeed, shaped like a very one-sided trough, partly sunk in water. One side of the trough is formed by the low coast range; the other side is the mighty wall of the Andes; and the hollow part of the trough is the great central valley.

At the southern end the land has sunk somewhat so that the coast range is 'half-drowned,' forming the islands and straits of southern Chile.

The country is, therefore, somewhat like the model shown in fig. 31.

We have just seen that Chile may be divided lengthways into three physical divisions, viz.:

(1) The Coast Range.
(2) The Central Valley.
(3) The Andes.

The country is also easily divided breadth-ways into three very well marked climatic divisions, viz.:

(1) *Northern Chile*, which is an almost rainless desert.

(2) *Middle Chile*, which is a 'Mediterranean' region with hot, dry summers, and warm, moist winters.

(3) *Southern Chile*, which has rain in all seasons.

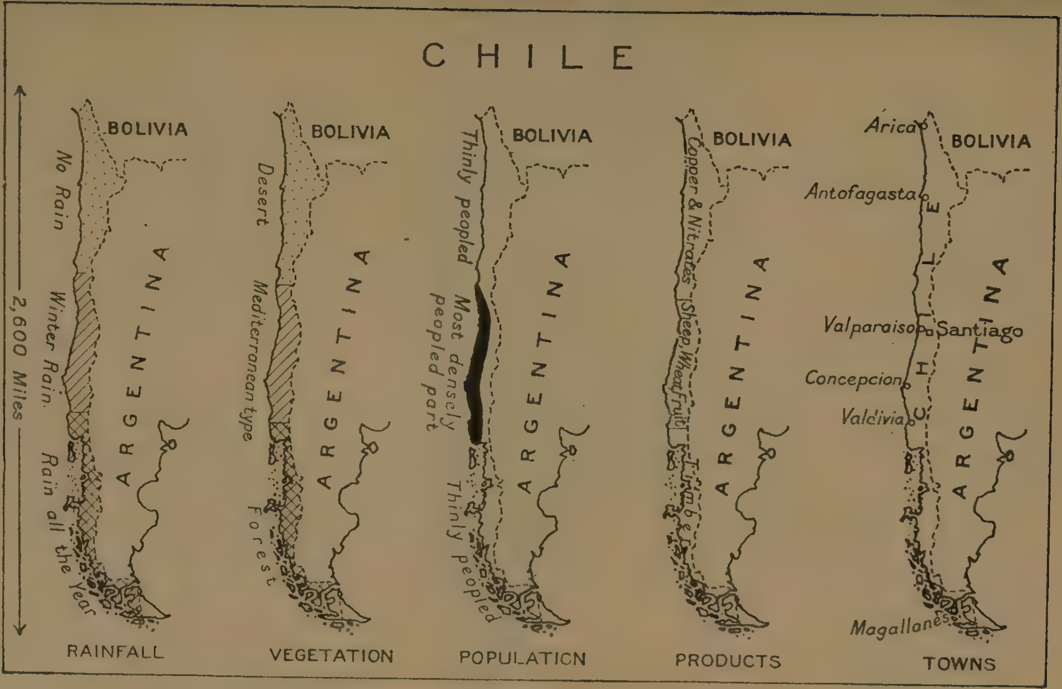


FIG. 30. COMPARATIVE MAPS OF CHILE

The reason for these climatic differences between the three parts of the country is to be found in the winds. In Northern Chile, the South-east Trades blow parallel to the coast all the year, and bring no rain to the land. In some parts, indeed, they get only one shower every four or five years.

In Middle Chile, the summer winds are the Trades, which blow parallel to the coast; in this season, therefore, there is no rain. In winter, however, westerly winds blow from the sea, and as they are compelled to rise as they approach the Andes they bring much rain.

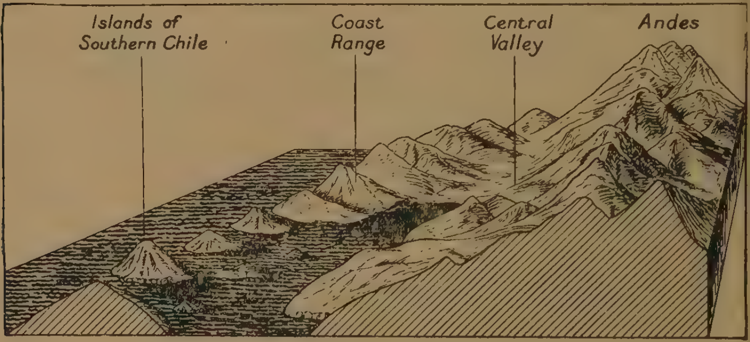


FIG. 31. BLOCK-DIAGRAM OF CHILE

In Southern Chile the winds are from the west all the year round, so the rainfall is heavy at all times.

These climatic differences cause great differences in the life and work of the people in the three divisions of Chile.

NORTHERN CHILE is so dry that it is of no use for farming of any kind. Fortunately, however, it is very rich in minerals. One very important mineral is **nitrate of soda**, or **Chile saltpetre**, which is used for two widely different purposes. It may be made to support life, by being used as a fertilizer to increase the yield of various food crops;

and it may be made into explosives to destroy life in time of war.

The nitrate is found in beds which vary in thickness from a few inches to many feet. It is mined or quarried by blasting, the pure nitrate being obtained by standing the lumps of rock in water and evaporating the solution.

As there is not a drop of fresh water to be found anywhere in northern Chile, supplies have to be brought from the far-distant Andes. At one time, a favourite method of transporting water was by barrels which were pulled along the ground by mules. Nowadays, however, the water is conveyed from the mountain streams and lakes in pipe-lines.

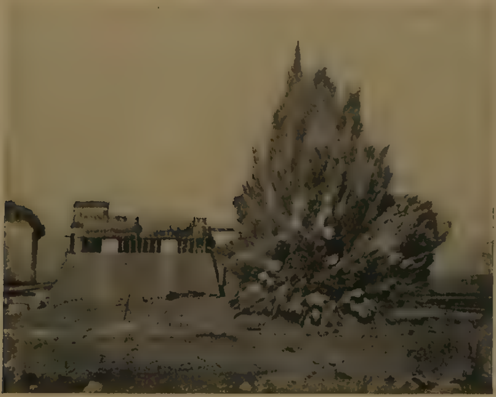


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FIG. 32. BLASTING THE NITRATE-BEARING ROCK IN CHILE

The other important mineral of northern Chile is **copper.** Though the ore is not of very good quality, there is a great deal of it, and Chile produces one-fifth of the world's supply of the metal.

The towns of northern Chile are all ports, from which nitrate and copper are shipped. The most important are **Iquique** (pronounced *ee-kee-kay*) and **Antofagasta.**

MIDDLE CHILE is the only part of the country where much farming is carried on. Even there, the great difficulty is lack of water. Wheat can be grown without irrigation, but it takes nearly two years to get one crop, as it is grown by the 'dry farming' method described in the case of Australia (Book I). The best farm land is that which is irrigated from canals which lead from the mountain streams.

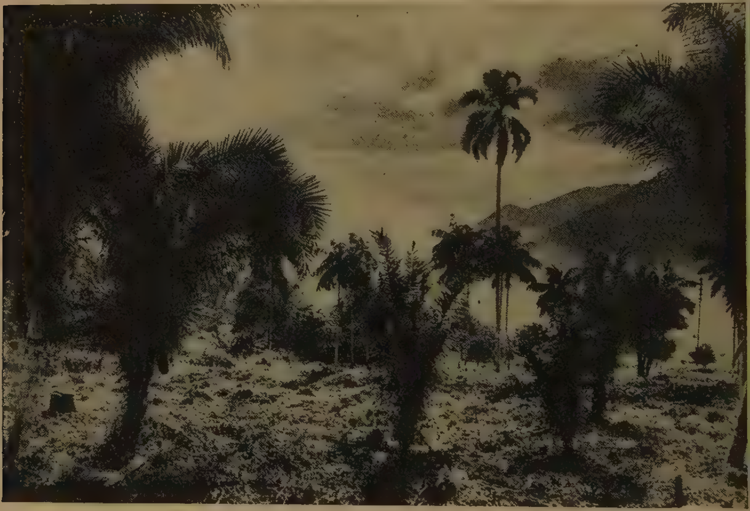

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FIG. 33. LANDSCAPE IN MIDDLE CHILE

Unfortunately, most of the land in Chile is in large estates, many of whose owners are unable to build expensive irrigation canals. Consequently, much land is used only for sheep-pasture when it might be made to produce good crops of wheat, fruit, or vegetables.

Even so, Middle Chile grows far more food than her people require. A good deal of it is sent to the mining camps of Northern Chile, and fairly large quantities of wheat are exported.

The chief towns of Chile are situated in this fertile middle portion. **Santiago,** the capital, is situated in the central valley, on the trans-continental route from Buenos Aires, through the Uspallata Pass to **Valparaiso,** the chief port of Chile.

SOUTHERN CHILE is even more thinly peopled than northern Chile, for while the north suffers from lack of rain, the south has far too much. Practically all the southern third of the country is covered with forest and bog. Even lumbering cannot very well be carried on, because the ground is too soft for the logs to be hauled over it. As a consequence, though Chile has such a large area of forest, she buys most of her timber from North America.

E.N.A.

FIG. 34. SANTIAGO: A BIRD'S-EYE VIEW

In the extreme south, around **Magallanes** (Punta Arenas), are the large sheep farms which were mentioned on page 31. Near by is Chile's only oil-field.

2. PERU

There are few people who have travelled across the whole breadth of Peru. Indeed, the journey is full of toil, hardship, and even personal danger. But if we were able to make the journey, we should cross three very different kinds of land, viz.:

(1) The **COASTAL PLAIN**, a hot, rainless desert, which is a continuation of the desert of northern Chile. Not much nitrate is found in this region, but on the neighbouring islands there are large quantities of another valuable fertilizer, **guano**. The story of the formation of this substance is very interesting. It begins with the Peruvian Current, a cold current which flows along the west coast of South America from the Antarctic Ocean. Floating in the waters of this current are countless myriads of the tiny

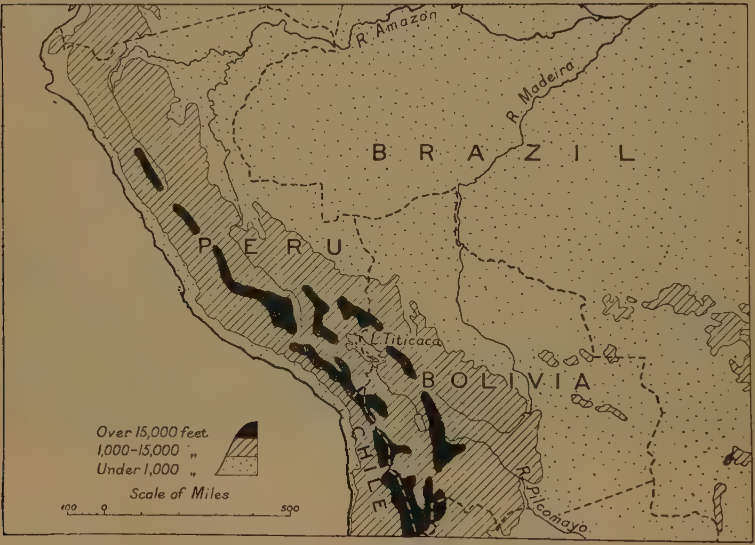
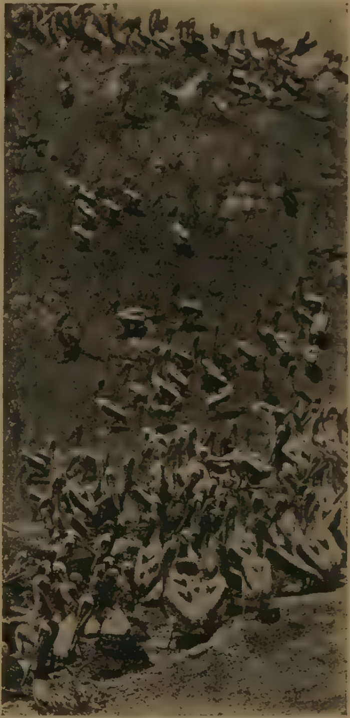


FIG. 35. PERU AND BOLIVIA—PHYSICAL

plants and animals on which fishes feed. As a consequence, there are immense shoals of fish in the water. These in their turn provide food for millions of sea-birds, which spend practically all their time on the water. In the nesting season, however, they go to the lonely islands off the coast of Peru to lay their eggs and hatch their young. At this season it is impossible to set down a foot on one of these islands without treading on a bird's nest. The guano is formed from the bird-droppings which have accumulated during many thousands of years.



American Museum of Natural History

FIG. 36. PELICANS NESTING ON A GUANO ISLAND OFF THE COAST OF PERU

Another valuable substance which is obtained from the desert region of Peru is **petroleum**, which is produced in many bores and wells near the northern end of the coastal plain.

Strange as it may seem, the desert region itself is the richest farming district in Peru. This is because the coastal plain is crossed by many rivers, whose waters are used for irrigating the low-lying valley lands. Here, large quantities of sugar-cane, cotton, rice, and fruit are grown.

Beyond the desert plains the land rises up to:

(2) **THE ANDES**, which here form three mighty mountain chains, between which are situated several fertile basins.

In one such basin, surrounded on all sides by snow-capped mountains, lies the ancient city of **Cuzco.** This was the capital of the Incas, whose empire stretched over most of the Andean region of South America. They were conquered by the Spanish leader, Pizarro, in the years 1531–3. In their lust for gold, the Spaniards killed many thousands of the Indians, and utterly destroyed their civilization, but some of their buildings still remain. Wonderful structures they are, too, the stones being of various sizes and shapes, but so accurately cut that they fit together, without mortar, so closely that it is impossible to insert the blade of a knife between them.

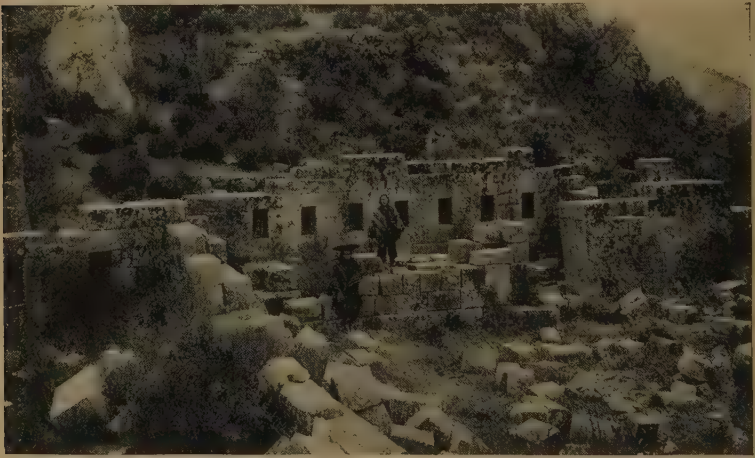


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FIG. 37. INCA RUINS, PERU

Farming is very difficult on the cold, dry plateaus of the Andes, and the Indians, who live in rude stone huts, have great difficulty in growing sufficient maize, potatoes, etc., to provide themselves with food.

Sheep, however, thrive well, and large quantities of wool are exported. The most useful animal, however, is the

llama, 'the camel of the Andes.' Though it looks somewhat like a sheep, it is a member of the camel family.

Its gentleness, sure-footedness, ability to go long distances without water, and to live on surprisingly little food make the llama peculiarly suited to the lofty and rocky Andes where it lives. These animals will carry about one hundred pounds; but if overloaded, they lie down and decline to move till their burden is lightened. They travel slowly, grazing as they go, and will not be hurried.[1]

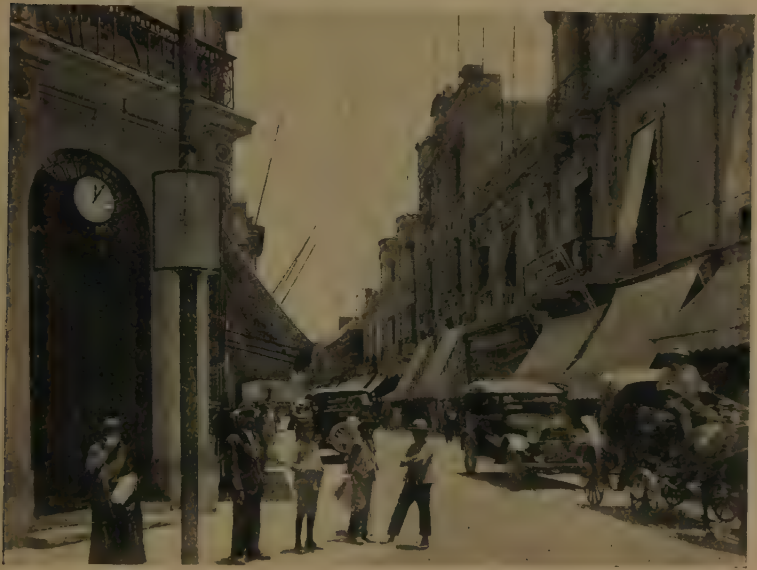

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FIG. 38. A STREET IN THE BUSINESS SECTION OF LIMA
Note the time, and the shortness of the shadows. What is the angle of elevation of the sun?

The **alpaca** is a somewhat similar animal which is kept for the sake of its fine wool.

Beyond the eastern range of the Andes, the land falls steeply to:

(3) The **AMAZON FORESTS**, which are reached by a

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[1] Whitbeck, *South America.*

perilous canoe voyage down one of the rapid tributaries of the Amazon. The most dangerous and exciting moment would be the 'shooting' of the great gorge by which the river breaks through the last range of the Andes.

Some hundreds of miles beyond the gorge, we should reach the Peruvian river-port of **Iquitos**, two thousand three hundred miles from the Atlantic, whence we could travel by steamer to **Manaos** (see p. 9).

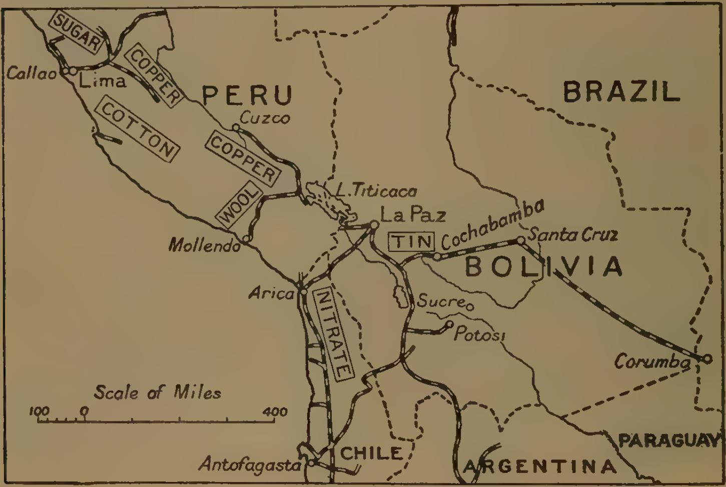

FIG. 39. PERU AND BOLIVIA—RAILWAYS AND TOWNS

The forest lands of eastern Peru are not of much use now, but some day the hill slopes will be cleared, plantations of cocoa, coffee, oranges, bananas, etc., will be made, and regular trade-routes opened up by the Amazon and the Atlantic to Europe.

THE CITIES OF PERU

Lima, the capital, is situated about seven miles from the coast, on the little river Rimac.

Callao, the chief port of Peru, is situated on a peninsula at the mouth of the Rimac. It is, next to Valparaiso, the busiest port on the west coast of South America.

Mollendo is the port from which the railway climbs up the Andes to the ancient Inca capital, Cuzco. It exports wool, alpaca, and copper, from the mountainous region behind.

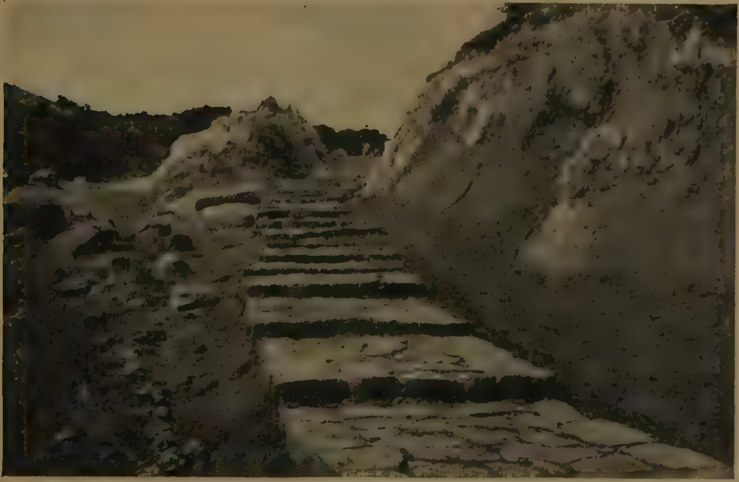

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FIG. 40. A ROAD IN THE ANDES

3. BOLIVIA

'Bolivia has its feet in the forests and its head in the clouds.' To see what this means, look at the atlas map, which shows that about half the country is in the high Andean region, while the other half is formed by the tropical, forested lowlands which drain to the Amazon and the La Plata.

Strange as it may seem, nearly all the people live in the high, cold, inhospitable half of the country, while the lowlands are almost uninhabited. The reason is that the mountains are rich in minerals, while the plains are hot and swampy and fever-ridden, and produce little of value.

For hundreds of years after the Spanish conquest of South America, Bolivia was the world's chief source of **silver.** Overlooking the city of **Potosi** is a conical volcanic peak from which it is said that over ten thousand tons of that precious metal have been obtained. The silver mines are almost exhausted, but Bolivia now produces a large part of the world's supply of **tin.** Indeed it may be said that the country lives on tin, for it is almost the only thing she has to sell to other countries.

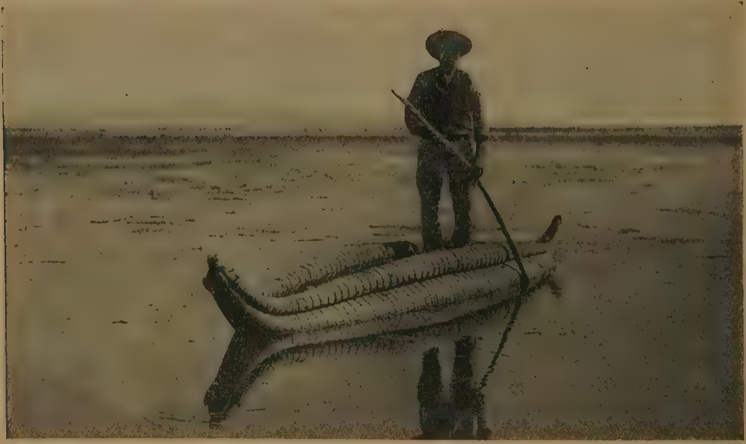

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FIG. 41. LAKE TITICACA. AN INDIAN IN HIS 'BALSA,' MADE OF BULRUSHES

TRANSPORT

Most of the tin ore is sent to Britain and the U.S.A. to be smelted, as there is no coal, or even wood, for fuel on the plateau. To transport the tin ore to the coast, railways have been built up the steep slopes of the Andes from Mollendo in Peru, and from Tacna and Antofagasta in Chile. On the plateau itself a line runs from Lake Titicaca through the whole length of the country, linking up with the lines from the coast. This line has recently been continued to join the trans-continental railway mentioned on page 36. Bolivia has also a short length of railway set in the midst of the Amazon forest, far remote from civilization. It was built to avoid the falls on the Madeira River, and so give Bolivia a way to the sea by the Amazon. Though the line was very costly in both money and lives—it is said that 'every sleeper cost a life'—it has not yet proved to be of much use.

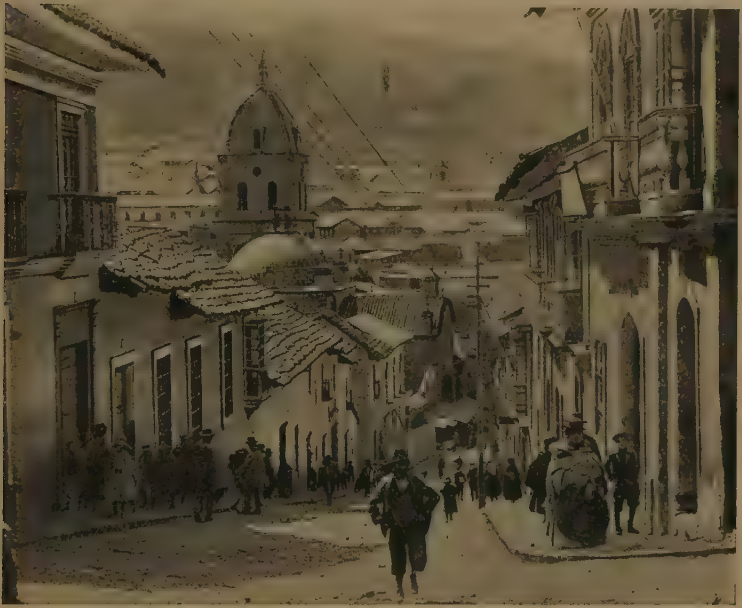

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FIG. 42. LA PAZ: THE MAIN STREET

Apart from the railways the chief methods of transport are by mule, llama, and human porter. 'The Bolivian Indian in general excels in carrying loads, in spite of the lack of tolerable highways, covering daily stages of twenty to thirty miles. The average load is sixty-six to eighty pounds.'

THE LIFE OF THE PEOPLE

About half of the people of Bolivia are full-blooded Indians, and nearly all the rest are half-breeds. They live mostly by farming the poor, stony land, but many of them earn money by working from time to time in the tin mines. The great curse of the country is drink. And what a drink! It is made from maize, which is first chewed to a pulp by women, then spat out, mixed with water and fermented.

Though the Indians are so desperately poor they prefer to stay on the barren plateau rather than accept free gifts of land on the eastern lowlands, which are so fever-ridden that they are often known as the 'Green Hell.' The Bolivian Government is, however, trying hard to develop the region. A railway is being built to link up with the Brazilian lines, and an oil pipe-line has been constructed to join Cochabamba with a newly developed oil-field on the eastern plain.

CITIES

La Paz, built at a height of 10,500 feet above sea-level, is the highest capital city in the world. It is situated in a great basin bounded by a precipice, over which ages ago a river flowed to join the Amazon.

Sucre shares the work of government with La Paz; and **Oruro** is the chief tin-mining centre.

EXERCISES

1. Give reasons why Chile is such a narrow country, and why it is so long.

2. We now make a great deal of nitrate in our own chemical factories. How is this likely to affect the farmers in Middle Chile?

3. Find on the map other 'drowned coasts' like that of Southern Chile.

4. Draw a sketch-map showing the shortest sea routes from Britain to Peru or Chile.

5. In Bolivia most of the people live on the high land; in Peru most of the people live on the low land; why is this?

6. Draw a diagram on squared paper to show the percentages of the world's tin normally produced by the following countries:

Malay States	34%	Nigeria	5%
Bolivia	21%	Siam	2%
Indonesia	18%	Belg. Congo	2%

Mark and name these districts on a map of the world.

7. 'A business man in Callao, the west-coast port of Peru, has dispatched a consignment of cotton, brandy, and wine to Iquitos, the eastern port of Peru—via Liverpool!' (*Daily Mail*). Draw a map to show the route by which the goods will travel to Iquitos, and say why the 12,000 miles route via Liverpool was chosen in preference to the direct route between the two towns, which are only 800 miles apart as the crow flies.

CHAPTER VI

THE EQUATORIAL COUNTRIES OF THE NORTH-WEST AND NORTH

THE northern Andes may be likened to three or four cords, which are knotted together at various places. Indeed, the Spanish name for the mountains—**Cordillera**—means cords. It must be remembered, however, that each 'cord' is a mighty mountain range, and is itself composed of many ranges each of which would dwarf Europe's highest mountains.

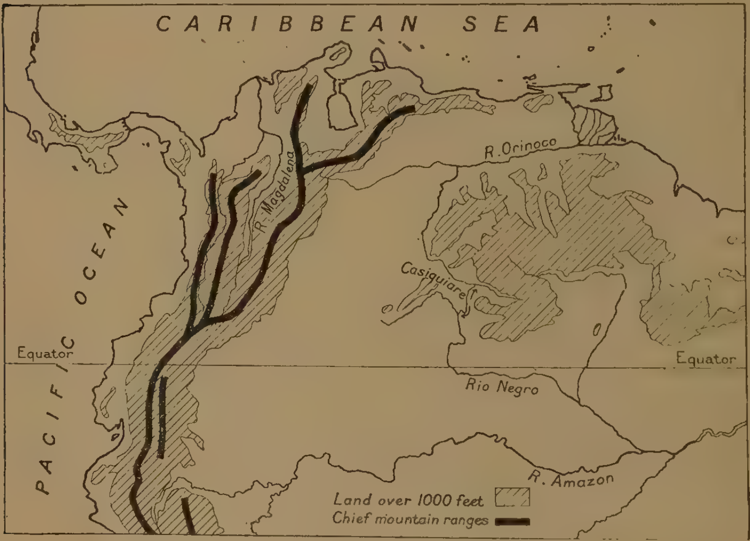

FIG. 43. THE NORTH-WESTERN PART OF SOUTH AMERICA—PHYSICAL

As shown in figs. 35 and 43 there are, between the knots, several high, mountain-girt plateaus, such as that in which Quito lies. In the north, however, the 'cords' separate, one range forming the isthmus of Central America, and another running along the north coast of South America.

In the region occupied by the northern cordilleras are three republics—Ecuador, Colombia, and Venezuela. All of them were formerly Spanish colonies, but like their sister colonies in the south, they broke away from Spanish rule a century ago, and established themselves as independent countries.

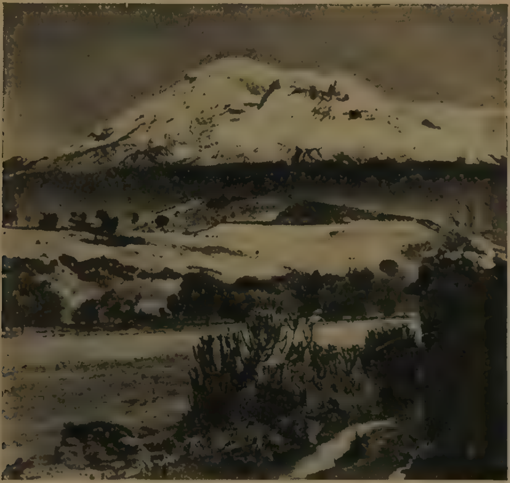
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FIG. 44. VIEW OF CHIMBORAZO VOLCANO, ECUADOR

I. ECUADOR

This little republic gets its name from the fact that it is situated astride the Equator.

If we were to visit Ecuador we should land at its only port, **Guayaquil**, which is situated about thirty-five miles from the mouth of the Guayas River. Though it is a town of over a hundred thousand inhabitants, most of its houses, and many of its churches and public buildings, are constructed of wood, and only the main streets are fit for motor traffic.

We shall not wish to linger in Guayaquil, even though there is not now any fear of taking yellow fever, which formerly infested the town. Crossing the river, we come to the terminus of Ecuador's only important railway, which runs across the mountains to Quito.

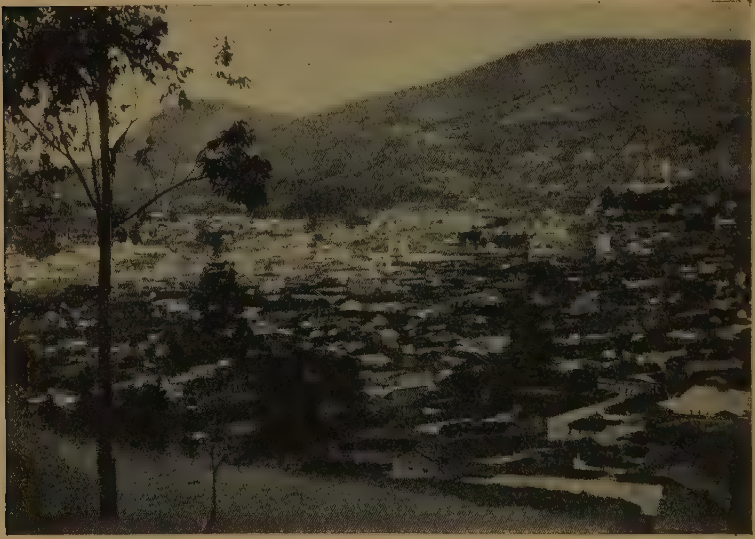

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FIG. 45. BIRD'S-EYE VIEW OF QUITO

For the first fifty miles or so, the railway runs across the hot, wet, coastal plain, where there are numerous plantations of coconut-palms, bananas, and sugar-cane. In front of us we shall see the Andes, rising up so steeply and to such great heights that it seems almost impossible for any railway to surmount them. Indeed, the line we are on is one of the wonders of railway engineering, for in fifty miles it rises more than ten thousand feet. One famous portion of the line, known as the Devil's Nose, consists of a double 'switch-back' shaped like a giant letter Z. When the train gets to the point of the Z it goes into a siding and then backs up the part represented by the middle limb of the letter. At the summit of this incline the process is repeated.

At a height of ten thousand feet we reach a great plateau, hemmed in between vast mountain ranges. The line then turns northwards and runs round the base of the snow-capped volcano, Chimborazo, to **Quito,** the capital of Ecuador.

Though Quito, as its name suggests, is situated on the Equator, it is so high above sea-level that its climate is no warmer than that of Britain in summer. But, as the sun is never far from overhead at noon, every day has practically the same weather—warm, sunny days, and clear, cold nights—and darkness falls suddenly at 6 p.m.

The city was the northern capital of the Empire of the Incas, who connected it by road to their southern capital Cuzco.

LIFE AND WORK OF THE PEOPLE

Most of the three million inhabitants of Ecuador are Indians and half-breeds, who get a poor living by cultivating the stony soil of the plateau, or by tending plantations on the hot, wet, coastal plain.

Cocoa and **bananas** are cultivated for export on the hot, wet coastal plain, and **coffee** of excellent quality is grown on small holdings on the highland slopes. Though the sale of these export products provides the native farmers with a small income, most of them depend in the main on their home-grown foodstuffs.

Ivory nuts are also gathered for export. They are the kernels of the fruit of a palm, and are so hard that 'ivory' buttons are made from them.

The making of **Panama hats** is the chief industry of the peasants of Ecuador. The fibre from which the hats are made is obtained from the leaves of a palm-tree. Those made from coarse fibre take only a few days to make, but the best hats, which are made from fibre no thicker than thread, may entail six months' steady work. The reason they are called 'Panama' hats is that they were formerly sent to that port to be marketed.

2. COLOMBIA

From the physical point of view this republic, which occupies the north-western corner of South America, may be likened to a fan. The 'ribs' of the fan are the mountain ranges which spread out from the Pasto 'knot' northwards and eastwards (see fig. 43). The hollows between the ribs are represented by the valleys of such rivers as the Cauca and the Magdalena.

It might be supposed that the valleys are the best parts of Colombia. On the contrary, they are so swampy, and the climate so hot and wet and unhealthy, that they are the worst parts of the state for men to live in. The best districts are the high plateaus, where the climate is cool and there are no fever-breeding swamps. Unfortunately, these plateaus are far from the sea, and are separated from each other by hundreds of miles of swamp and forest and snow-clad mountains.

How difficult transport is in Colombia we should realize if we were to travel to Bogota, the capital. After a voyage of about a fortnight from England we should land at either **Puerto Colombia**, at the mouth of the Magdalena River, or at **Cartagena**, a hundred miles to the south-west. The

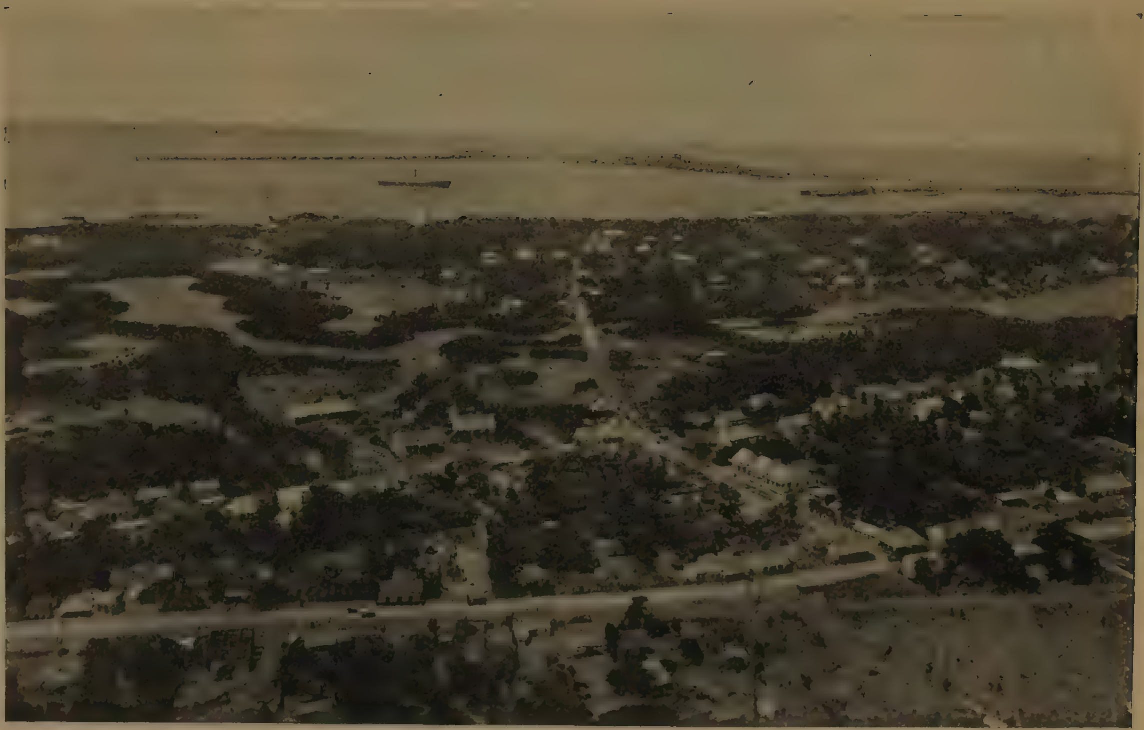

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FIG. 46. CARTAGENA: BIRD'S-EYE VIEW

latter port is one of the most ancient cities in America, and in the days of Sir Francis Drake and the buccaneers it was one of the chief strongholds of the Spanish Main. The next stage of our journey would be by river steamer for six hundred miles up the Magdalena. If we were fortunate this would take us only four days; but if it were a time of drought or flood we might be delayed for a week or more. The next stage would be a short railway journey to avoid falls and rapids in the river; after this we should again embark on a river steamer or motor boat, and a few hours later should reach the railway which climbs up the plateau to Bogota.

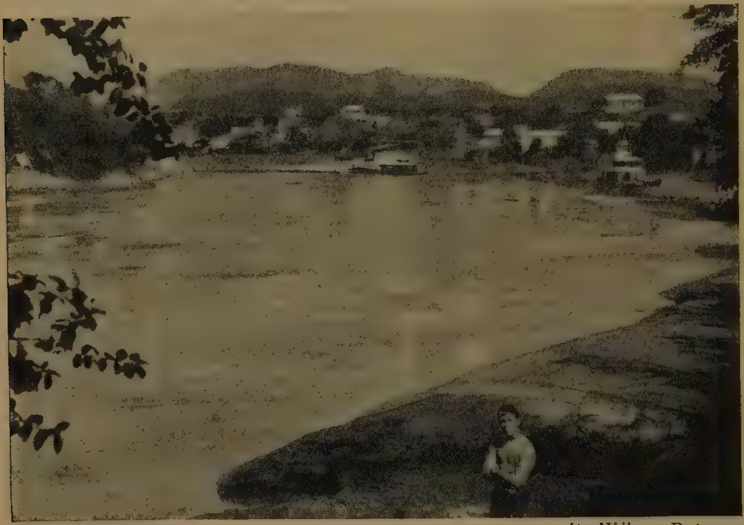

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FIG. 47. THE MAGDALENA RIVER AT GIRADOT

The shortest time taken for the journey of eight hundred miles from the coast to the capital would be six days, but goods are often several months in transit between the two points. In such difficult country air transport is a great boon. Regular air services carry passengers and mails from the coast to Bogota in a few hours, and link up all the chief cities of Columbia.

THE PRODUCTS OF COLOMBIA

Coffee is the chief crop of the republic; indeed, the majority of the Colombian peasants would earn no money at all if they had no coffee to sell. Fortunately, the coffee produced is of very good quality, otherwise it could never be sold at a profit, as it costs so much to carry it to the coast.

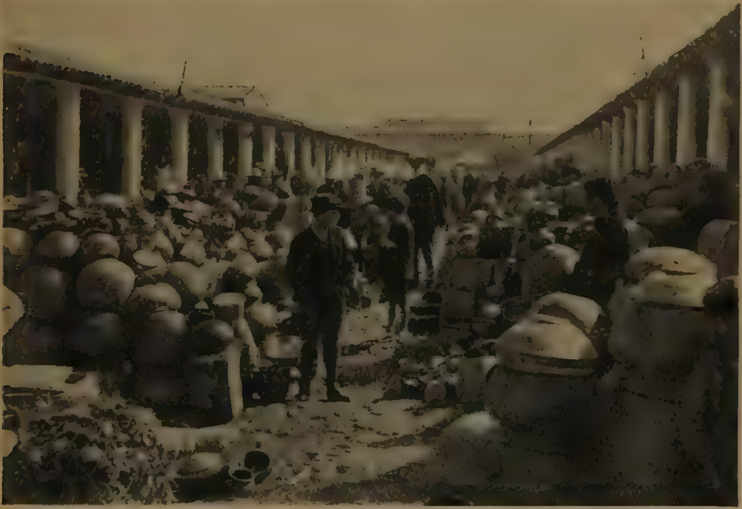

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FIG. 48. POTTERY MARKET IN BOGOTA

The coffee-bush grows best on the mountain slopes, between three thousand and seven thousand feet above sea-level, and well above the fever-stricken lowlands.

Bananas, the second crop in importance, are cultivated chiefly on the northern coastal plain, where there are many large plantations, from which millions of bunches of the fruit are sent to Britain and the United States each year.

Other crops, which are grown by the natives for their own use, are sugar and rice on the lowlands, and wheat and maize on the highlands.

MINERALS

Petroleum is obtained in large quantities from wells which have been sunk in the valley of the Magdalena. Colombia now produces about 1 per cent of the world's oil.

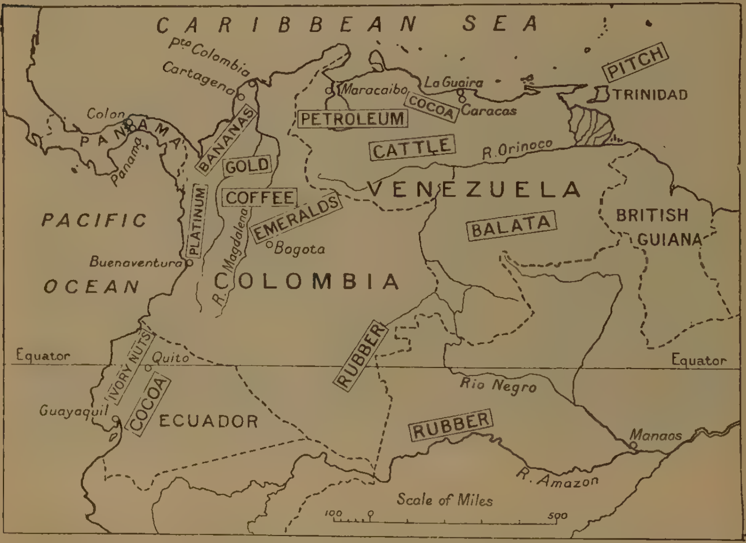

FIG. 49. PRODUCTS AND TOWNS OF THE NORTH-EAST

Platinum, which is many times dearer than gold, is mined in certain river valleys near the Pacific coast. At the present time about 2 per cent of the world's supply of this metal comes from Colombia.

Emeralds are mined in the mountains north of Bogota.

All the mines are worked by the Government, no private person or company being allowed to work an emerald mine.

Gold, silver, and copper are also found, but only small quantities of these metals are as yet produced.

3. VENEZUELA

If we were to walk across Venezuela from north to south, we should pass through four different types of country.

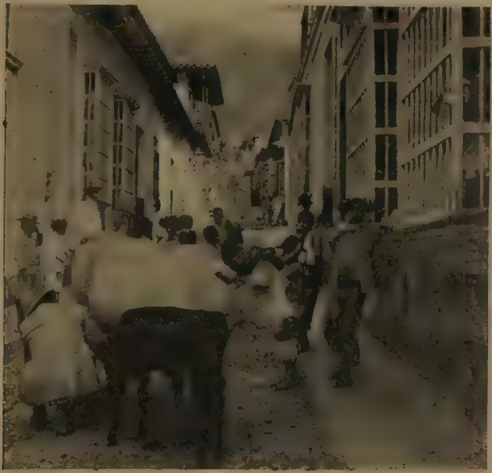

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FIG. 50. A MILKMAN ON HIS ROUNDS, LA GUAIRA

(1) The **COASTAL PLAIN** in the north. This is a low, hot, and unhealthy region, but is important as it is the chief gateway of the country. The western corner of this plain, around the Gulf of Maracaibo, is one of the world's chief petroleum-producing districts.

(2) The **NORTHERN MOUNTAINS**, which run parallel to the coast. This is the only part of the country where white men can live in comfort, and here are situated the chief towns, including the capital, **Caracas**. The mountain sides

are planted with coffee bushes, from which considerable quantities of good coffee are obtained with little cultivation.

(3) The **LLANOS**, or grassy plains of the Orinoco, which lie between the Guiana Highlands and the coastal ranges of Venezuela. These vast grasslands are very thinly peopled, and though there are many great herds of cattle pastured on them, the animals are very poor specimens, and practically no meat is exported. The reasons why ranching is not more successful on these 'savannas' are:

(*a*) The weather is too hot to be really suitable for cattle. (*b*) The herds are subject to many diseases and insect pests. (*c*) In summer, when most of the rain falls, all the low-lying lands are flooded. (*d*) In 'winter,' which is the dry season, the sun is so hot that the grass shrivels up and the animals suffer from lack of food.

In spite of these drawbacks there are about three million cattle on the llanos, as well as some two million sheep and goats.

(4) The **GUIANA HIGHLANDS**, in the extreme south, are still more thinly peopled. The mountain sides are covered with dense forest, few parts of which have ever been visited by white men. The chief industry of the region is the collection of **balata**, a milky sap which is obtained by making cuts in certain trees, just as rubber is obtained in the Amazon forest. The balata sets hard like rubber, but is used chiefly for the manufacture of pulley belts for driving machinery. Much iron ore is now mined on the edge of the high land and exported to the United States.

4. THE GUIANAS

These three countries—British, Dutch, and French Guiana—are the only parts of the mainland of South America which are not self-governing countries. **BRITISH**

GUIANA is by far the most progressive of the three territories, but its total population is only about 450,000, of whom 20,000 are white people.

The chief product of British Guiana is sugar-cane, which is cultivated on the hot, wet lowlands near the coast. Most of the sugar is produced on large estates, which are owned by British people. The workers on the estates are 'coolies' who were brought from the East Indies.

Paul Popper

FIG. 51. VIEW IN GEORGETOWN, BRITISH GUIANA

Gold is obtained by washing the sands of the river valleys. It seems likely that this gold is brought down by floods from the mountains of the interior, and some day rich discoveries of the precious metal may be made. The early Spanish explorers believed that far away in the interior, at a place they called **El Dorado,** there were vast deposits of gold. Though this great wealth has never been found and probably does not exist, we often call a concern which brings in a great deal of money an 'El Dorado.'

Diamonds are also found in the clayey soil of the river valleys, and the value of diamonds exported now far exceeds that of gold.

Bauxite, the ore from which aluminium is obtained, is also mined, British Guiana being one of the world's chief sources of this mineral. Most of the ore is exported to Canada, where it is smelted by electricity.

The capital of British Guiana is **Georgetown.** It is situated at the mouth of the chief river, the Demerara—a name which is familiar to everybody in connection with brown sugar. Georgetown is very like a Dutch city in appearance; many of the houses are built in the Dutch style, with steeply pitched roofs and gables pointing to the street, and many of the streets have canals running along the middle. The reason is that the Dutch were the first white men to colonize the land, which was only finally given up to Britain in 1815.

DUTCH GUIANA and **FRENCH GUIANA** are both very backward regions. **Paramaribo** is the capital of the former, and **Cayenne,** which gave its name to a kind of pepper, is the capital of the latter. Off the coast of French Guiana is **Devil's Island,** which was formerly notorious for the harsh treatment meted out to convicts who were sent there from France.

EXERCISES

1. Draw a diagram on squared paper to show exports of cocoa. (Percentages of total world exports.)

Gold Coast	30%	Ecuador	3%
Brazil	17%	Venezuela	2%
Nigeria	15%	Trinidad	2%

Mark and name these districts on a map of the world.

2. Venezuela and Colombia have each about 2 miles of railway for every 1,000 square miles of land, whereas Argentina has

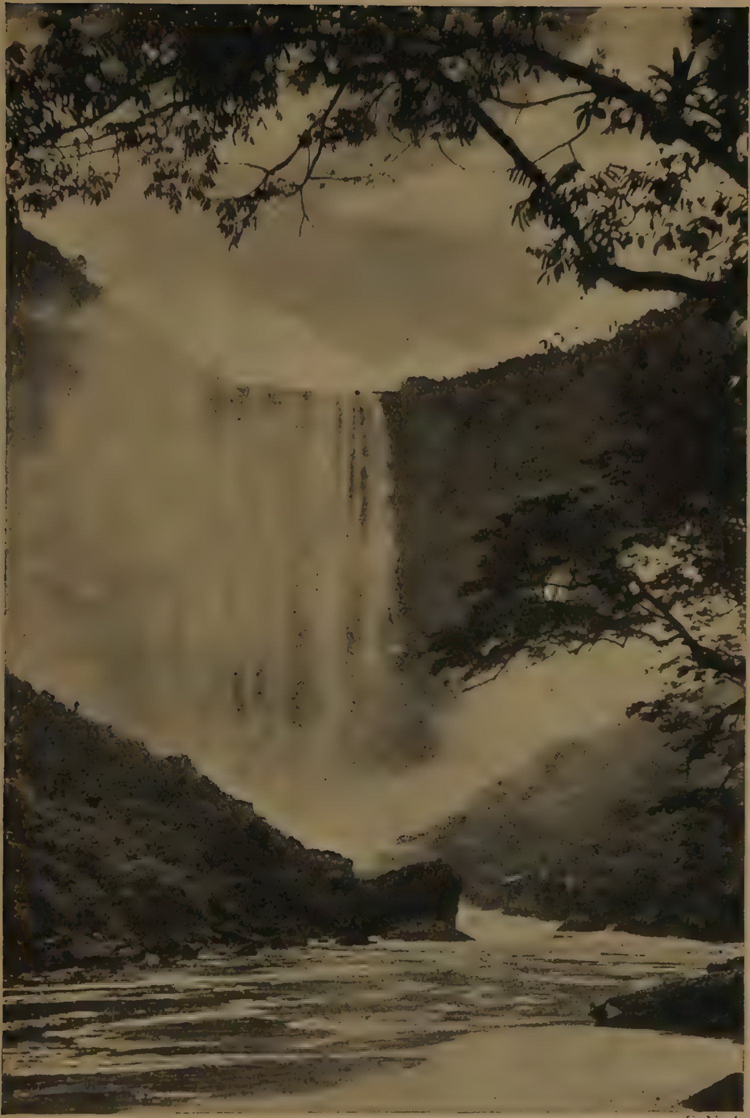

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FIG. 52. KAIETEUR FALLS, BRITISH GUIANA

20 miles of railway for each 1,000 square miles. Give reasons for the difference.

3. Plan an air route from Britain to Bogota, and mark your route on a sketch-map.

4. In a recent year Venezuela produced 80 million tons of oil, Colombia 5 million tons, and Peru 2 million tons. On an outline map of South America draw a barrel, or an oil derrick, in each of these countries, proportional in height to the amount of oil produced.

CHAPTER VII

CENTRAL AMERICA AND THE WEST INDIES

CENTRAL AMERICA is the isthmus which joins North America to South America. This narrow strip of land contains seven out of the twenty-three states which occupy the mainland of the two continents (see the puzzle map, fig. 53).

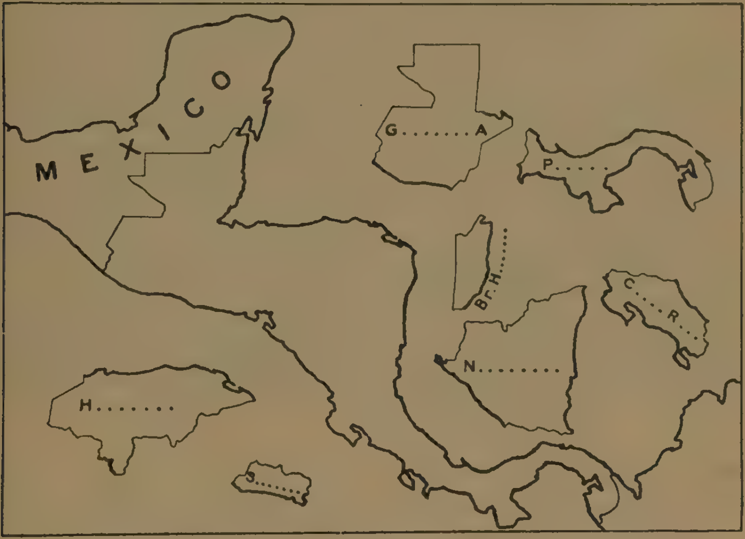

FIG. 53. CENTRAL AMERICA—PUZZLE MAP

The reason there are so many countries in the isthmus is that the mountains divide it into a number of plateaus and basins, each of which is cut off from its neighbours. Yet the countries are very similar in many ways.

As shown in fig. 54, the greater portion of the isthmus is occupied by a high plateau, enclosed between mountain ranges which rise up steeply from the narrow coastal plains. Most of the people of Central America live on the plateau, as the coastal plains are very hot, wet, and unhealthy.

The chief money-making crop in Central America is **coffee**, which is grown on the plateau. The coffee estates are usually very large, and the Indians, or *peons*, who work on them are often little more than serfs. The owner of the estate allows them the use of plots of farmland, on which they grow their own food, but expects them in return to work on his coffee plantations for very small wages. In many districts it is the custom for the 'labour' to be sold along with the plantation.

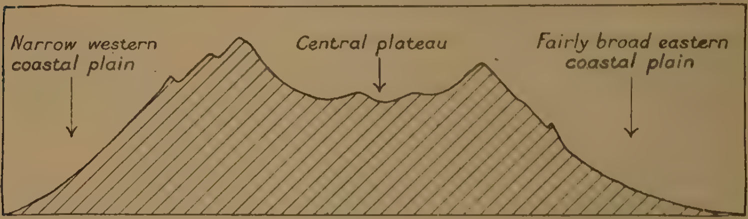
Narrow western coastal plain
Central plateau
Fairly broad eastern coastal plain

FIG. 54. DIAGRAM-SECTION ACROSS CENTRAL AMERICA

On the lowlands the chief crops are bananas and sugar-cane. The banana plantations are usually owned by British or American firms, who employ Negroes from Jamaica to clear the bush, build railways, plant and tend the banana-trees, and attend to the shipment of the fruit. After a few years the yield of bananas begins to decline, and the plantation is then abandoned.

In **BRITISH HONDURAS** the most interesting product is **chicle**, a kind of sap from which chewing-gum is made. **Belize**, the capital of the colony, may be said to be the 'chewing-gum capital' of the world. The most valuable export from the colony, however, is mahogany, which is of very high quality. As the mahogany-trees are widely scattered, the lumbering companies employ experts called 'mahogany hunters' to find the trees and clear paths to them. After cutting, the logs are hauled to the rivers by teams of oxen. This is usually done at night, as the days are too hot for the oxen to work in comfort.

E.N.A.

FIG. 55. ON A BANANA PLANTATION

THE PANAMA CANAL

Nature made the Isthmus of Panama a barrier between the Atlantic and the Pacific. For hundreds of years men dreamt of making a gateway through this barrier. De Lesseps, who engineered the Suez Canal, attempted to cut a ship-canal across the narrowest portion of the isthmus, but Nature defeated him—not by mighty mountains or by unfathomable swamps, but by little flies! Countless myriads of mosquitoes spread the death-dealing germs of malaria and yellow-fever among engineers and labourers, so that in the end the task had to be abandoned for lack of workers.

In 1904 the United States Government decided to take up the task which had defeated de Lesseps. They began by a declaration of war on the mosquitoes. Marshes were drained or filled up, and stagnant pools were covered with a thin film of oil, so that the young mosquitoes could not survive. A supply of pure drinking-water was obtained, modern systems of sanitation were introduced, and houses

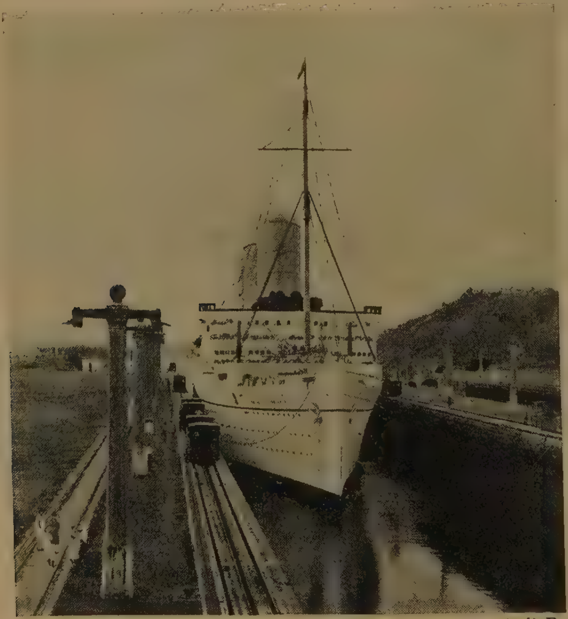

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FIG. 56. VESSEL IN A LOCK ON THE PANAMA CANAL
Note the electric mules pulling the vessel

were fitted with anti-mosquito screens. By these measures the mosquitoes were not only defeated, but exterminated; and yellow fever and malaria, which in the days of de Lesseps had carried off twenty thousand men in a year, are now unknown, and the **Canal Zone** is one of the healthiest places in the world.

The construction of the canal began in 1907 and was completed in 1914. The most notable engineering achievement was the building of the Gatun Dam, an embankment one and a half miles long, and half a mile wide at the base. In the course of the canal are three pairs of locks, through which vessels are towed at the rate of two miles per hour by 'electric mules' (locomotives on cog-tracks). The average time taken in passing through the canal is from seven to eight hours.

THE WEST INDIES

These islands were so called because Columbus, when he first sighted them, thought he had reached India by sailing westwards. It will be seen from the map that they extend in a great loop from the Yucatan Peninsula of Mexico to the north coast of South America. The islands undoubtedly represent the highest part of a mountain range which has been partially 'drowned.' It is very probable, too, that between this mountain chain and the mainland there was once a great land-mass, which sank below sea-level, thus forming the Caribbean Sea.

All the islands of the West Indies are situated in the tropics, and within the belt of North-east Trades, which here blow from the sea. They have, therefore, a hot climate, and their north-eastern sides receive plenty of rain, though the south-western sides, which are in the rain-shadow, have a rather dry climate.

Cuba, the largest of the islands, is an independent republic, formerly supervised by the United States. The chief money-making crop of the island is **sugar-cane.** Nowhere else in the world can this crop be grown so successfully; in fact, Cuba supples about one-fifth of the world's sugar. The greater part of the cane is grown by 'share-farmers,' who get land rent-free from the owners of the sugar factories, to whom they give in return an agreed share of the crop.

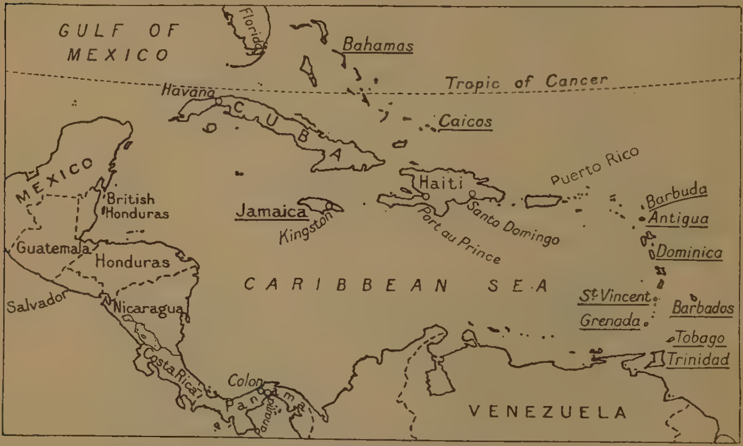

FIG. 57. THE WEST INDIES
The names of the chief British islands are underlined

Tobacco is the second most important product. The greater part of the crop is used in the manufacture of Havana cigars.

Fruits, especially bananas and grape-fruit, are also grown in great quantites for export to the United States and Britain.

The chief town of Cuba is **Havana,** which has a population of over 750,000. Strange as it may seem, goods trains formerly ran from this city to the United States. A train-ferry took them to Key West, from which a railway, now destroyed, ran along a chain of islands to the peninsula of Florida.

HAITI, the second largest of the West Indian Islands, is divided into two independent republics: Haiti in the west and San Domingo in the east. The majority of the people are Negroes who are descendants of former slaves. The chief town is **Port au Prince**, the capital of Haiti.

Cunard S.S. Co.

FIG. 58. COCONUT PALMS, JAMAICA

PUERTO RICO is ruled by the United States, who took it from Spain in 1898. The great majority of the inhabitants are of Spanish descent; indeed, it is said that no other tropical country in the world has so large a proportion of white people. **San Juan** is the capital.

JAMAICA is the largest West Indian island under British rule, but it is only about two-thirds the size of Yorkshire. The island is specially noted for the production of **bananas**, and **rum**, the latter being distilled from the juice of sugar-cane.

The capital and chief town is **Kingston.**

BARBADOS is the most easterly island of the West Indies. It is a very fertile little island, and, like Jamaica, it is a British possession and is peopled mainly by descendants of freed slaves. The chief money-making crops are sugar-cane and tobacco. The capital is Bridgetown.

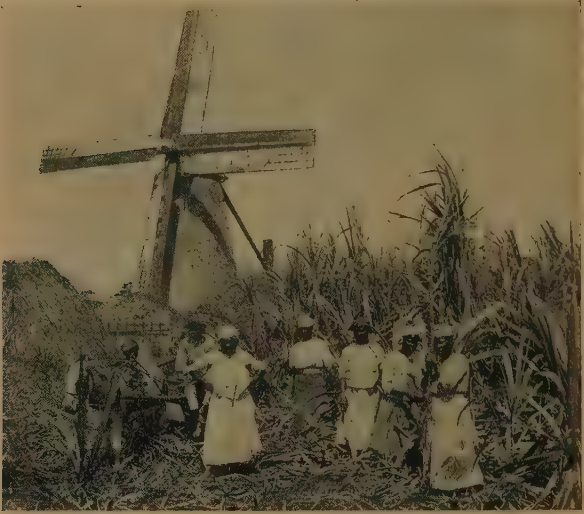

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FIG. 59. BARBADOS: A SCENE ON A SUGAR-PLANTATION
The windmill is used for crushing the cane

TRINIDAD, a British island situated off the coast of Venezuela, is famous chiefly for its pitch lake, from which we get a large part of the asphalt used in the making of our roads. The 'lake' is about a sixth of a square mile in extent, and is probably two hundred feet deep. Though it has been worked for forty years there is still enough pitch left in it to supply one hundred thousand tons a year for five or six hundred years.

The pitch is almost solid, and may be walked on without danger, though it is not advisable to stand still on it when the weather is hot.

Another very important product of Trinidad is petroleum; indeed, though the oil produced is only one per cent of the world's supply, it is the island's chief source of wealth.

Most of the inhabitants are Negroes who are descended from former slaves. They cultivate little plots of ground attached to their whitewashed wooden houses, or work on sugar and cocoa plantations which are owned and managed by British people.

The capital and chief port of Trinidad is **Port of Spain,** a well-built city situated on the west coast.

The smaller islands of the West Indies between Puerto Rico and Trinidad are grouped politically into the Leeward Islands in the north and the Windward Islands in the south. Nearly all of them are British territories, and it is probable they will be eventually linked with Jamaica, Trinidad, etc., in a West Indian Federation.

Characteristic of all the islands are the beautiful scenery and the delightful winter climate which makes them so attractive to tourists. In spite of the natural fertility of the soil, however, the people, most of whom are of Negro blood, find great difficulty in making a satisfactory livelihood. Most of them grow food-crops on their own farms and earn a small income by the cultivation of some 'money' crop.

Sugar-cane is the chief resource of Antigua, St Kitts, and St Lucia; **cotton**, of the valuable 'Sea Island' type, is grown on Montserrat and other islands; **bananas** are a speciality of Dominica, **nutmegs** of Granada, and **arrowroot** of St Vincent.

EXERCISES

1. This is how a recent writer describes Central America:

'A section of the continental back-bone pushing up out of the sea, and a little more. It is a tent on a tropical beach; a roof, with eaves in the warm, blue waters of the Pacific and the Caribbean, and a gable of volcanoes.'[1]

Consider these three metaphors, and say if you think them appropriate.

2. Coffee is the chief 'money crop' of Central America. Say what is meant by this statement, and name one country of which it is not true.

3. Which island may best be described as 'The sugar-bowl of the West Indies,' which as 'Banana Island,' and which as 'The road-maker's friend?'

4. In which direction does the Panama Canal run? Which port is farther west, and by how much, Colon or Panama?

5. The route of the Panama Canal is the shortest way across the isthmus. Can you find on the map a route which looks easier for canal construction?

6. Which countries of South America are likely to have benefited most by the construction of the Panama Canal?

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[1] A. J. Ruhl, *The Central Americans.*

CHAPTER VIII

MEXICO

This large republic is part of the North American continent, but it is in some ways more like Central and South America. This is partly because it was conquered by Spain, who ruled it for three hundred years.

A magic-carpet flight across the country from east to west would show us five clearly marked physical divisions, viz.:

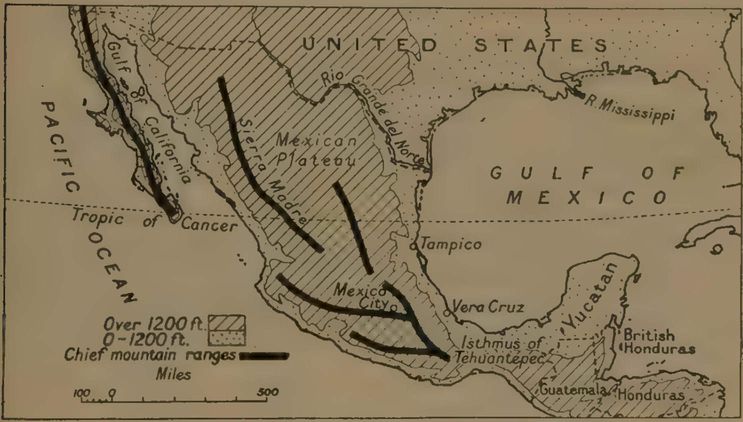

FIG. 60. MEXICO—PHYSICAL AND TOWNS

(1) The eastern coastal plain—a hot, moist, and unhealthy tropical region.

(2) The eastern wall of mountains.

(3) The great plateau, which lies at a height of about eight thousand feet above sea-level. Because of its great height the plateau is much cooler than the coastal plain.

The higher part is called the *Tierra Fria* (Cold Land) by the Mexicans, while the lower part is the *Tierra Templada* (Temperate Land). In summer-time, however, the days are very hot, since the midday sun is nearly overhead, but as soon as the sun sets the temperature drops quickly and the nights are often very cold.

The plateau also suffers from lack of rain, since it is sheltered from the rain-bearing winds by the bordering mountain ranges.

(4) The western wall of mountains.

(5) The western coastal plain, the southern part of which is very similar to division (1), though the northern part is a desert.

THE LIFE AND WORK OF THE PEOPLE

Less than one-tenth of the people of Mexico are of pure white descent; the rest are either full-blooded Indians or half-breeds. The peasants, who make up by far the greater part of the population, live in much the same way as their Indian ancestors did. On the hot coastal plains the houses are built of slats of bamboo or palm, either set vertically an inch or two apart, or woven into a kind of lattice. On the colder plateau the usual building material is sun-baked mud. There are no windows and no chimney, and the single room is shared by humans and domestic animals—indeed, the nights on the plateau are so cold that the people are glad to sleep close to the animals for the sake of warmth. Beds are unknown among the poorer inhabitants of the country, their purpose being served by a single brightly coloured woollen blanket, which is also used as a coat during the day. The furniture consists chiefly of low stools and mats of woven fibre, while earthenware dishes and brightly painted wooden bowls hang up on the walls.

Water is scarce on the plateau, and many of the diseases to which the Mexicans are subject are due to drinking germ-laden water.

> A common water supply for the village is a stagnant pool. Sometimes it is a mere accumulation of rainwater holding over from one rainy season to the next, and growing steadily fouler. . . . Often this water is literally invisible for the covering of green algal scum. Yet man and beast drink it, and it serves for cooking and washing.[1]

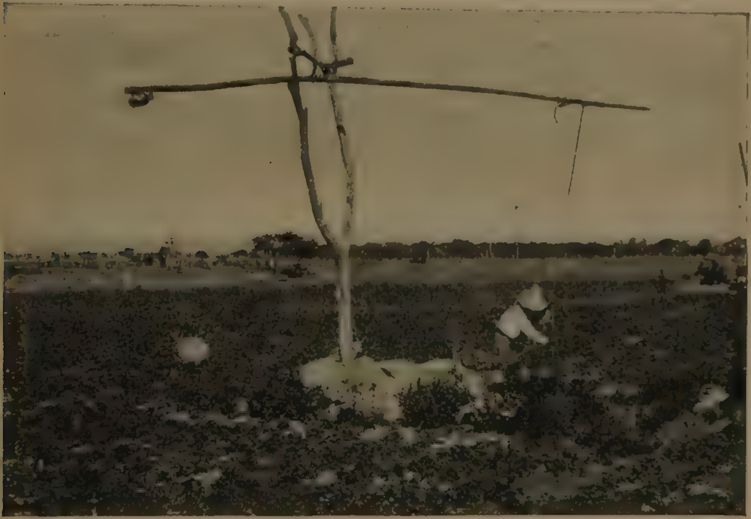

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FIG. 61. A PRIMITIVE METHOD OF IRRIGATION ON THE MEXICAN PLATEAU

The shortage of good drinking-water may account, in part, for the prevalence of drunkenness in Mexico. On the lowlands 'fire-water' is made by distilling the juice of sugar-cane, while on the plateau a highly intoxicating drink called **pulque** is made by distilling the juice of 'century' plants, each of which yields one or two quarts of liquid a day.

The chief food of the people is griddle-cakes, or **tortillas,** made from maize-pulp. 'For three-fourths of the Mexicans.

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[1] E. Gruening, *Mexico and its Heritage.*

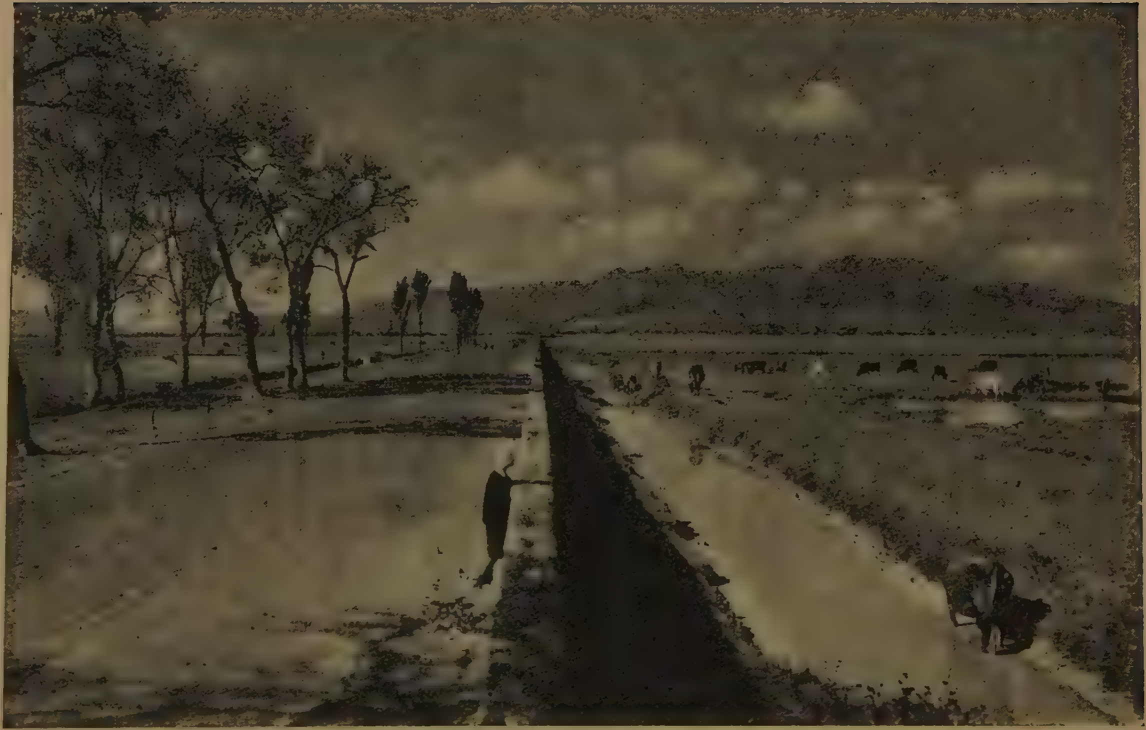

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FIG. 62. ROAD ACROSS THE BASIN IN WHICH MEXICO CITY LIES

the tortilla serves as a spoon for other foods'—beans, tomatoes, yams, onions, or occasionally meat. Everything is highly spiced with chilli pepper.

FARMING. When the Spaniards ruled Mexico, they divided the land into vast estates called **haciendas,** which were somewhat like the English manors of feudal times. On these estates the peasants, or **peons,** as they were called, were little better than slaves. They were not allowed to leave the estate on which they were born, and had to work a certain number of days each year for their master, in return for which they got a very small wage and the privilege of cultivating a little plot of land for themselves rent-free.

This condition of things lasted until 1917, when a law was passed abolishing peonage. Since then many of the great haciendas have been broken up, and the land shared among the former peons. In spite of their newly found freedom the peasants are still desperately poor. They can, it is true, grow enough on their own land to feed themselves, but they have little to sell, and so cannot buy clothes and other things they need.

Some large haciendas still remain, chiefly on the drier parts of the plateau, where the land is given up to ranching. Here we should see the Mexican cowboys, with their broad-brimmed high-crowned hats, long lassoes, and decorated saddles.

The **tierra caliente**—the hot, wet coastal plain—is very different from the high, dry, cloudless plateau. Most of the lowland is covered with dense forest, and the climate is very unhealthy. Consequently the population is scanty, though there are some plantations on which sugar-cane, cocoa, coconuts, and bananas are grown.

The Yucatan peninsula is specially noted for the production of **sisal** hemp, a fibre made from the spiky leaves of the henequen plant.

MINING. The Mexican plateau is rich in minerals, and considerable quantities of gold, silver, and iron are mined. The most important mineral, however, is **petroleum,** which is obtained from numerous bores on the eastern coastal plain.

CITIES. The chief ports of Mexico are **Tampico,** the great oil port, and **Vera Cruz. Progreso,** on the coast of Yucatan, exports the sisal hemp of that district.

Mexico City, the capital, is situated in a mountain-girt basin at the southern end of the plateau. With a population of 3,800,000 it is the seventh largest city in the world. In the days when it was the capital of the Aztec Empire, it stood on an island in the middle of a large lake, to the shores of which it was connected by stone causeways. After the Spanish conquest the lake was drained, but the main street of the city still follows the line of the ancient causeway.

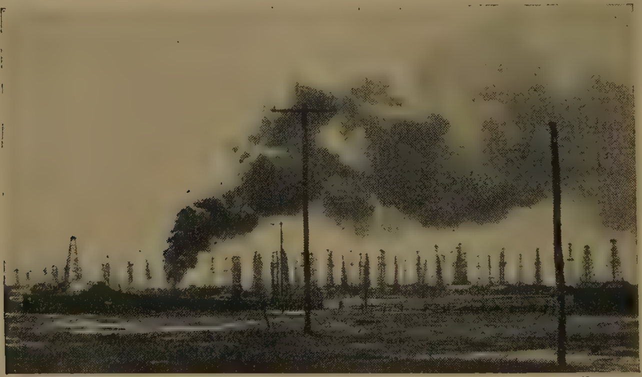
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FIG. 63. OIL-FIELD AT VERA CRUZ, MEXICO

EXERCISES

1. In what respects does Mexico resemble Argentina? In what respects does it differ from Argentina? (Think of such things as the land surface, the cultivated crops, pastoral farming, and minerals.)

2. From your atlas draw a sketch-map of the railway which crosses the isthmus of Tehuantepec (*tay-wan-tay-pek*).

3. The Mexicans send us (power and light); in return we send them (protection for the body). What commodities are represented by the words in parentheses?

4. Most isotherm maps show the Mexican Plateau as warm as the coast. This is because they are 'sea-level' isotherm maps; that is they show the temperature, not as it is, but as it would be if all the land were at sea-level. Assuming that the temperature falls 1° F. for every 300 feet of ascent, find the actual temperature of Mexico City, having given its height (7,400 feet), and its sea-level temperature (78° F.).

CHAPTER IX

TWO CONTINENTS AT A GLANCE

North and South America are really *two* continents, not *one*. If we compare them we shall find many more differences than resemblances; but by doing so we shall sum up what we have learnt about South America, and prepare ourselves for learning the geography of North America.

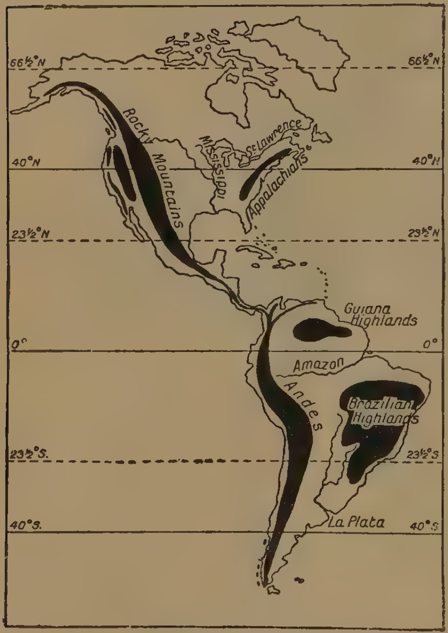


FIG. 64. NORTH AND SOUTH AMERICA—PHYSICAL FEATURES

(1) **Physical Features.** The two continents are more nearly alike in their build than in any other way (see fig. 64). The Andes of South America are matched by the Rockies of North America; the Brazilian Highlands correspond to the Appalachians; the Amazon Basin is in a somewhat similar position to the St Lawrence Basin; and the La Plata Basin and the Mississippi Basin are both mid-continental lowlands.

(2) **Climate.** The great bulk of South America lies within

the Tropics, and the continent narrows towards the Pole. The great bulk of North America, on the contrary, lies outside the Tropics, and the continent broadens towards the Pole. Consequently, the greater part of South America is hot at all times, while nearly all North America is very cold in winter (see fig. 65). Strange as it may seem, however, parts of North America are hotter in July than any part of South America is in January. This is because the southern continent is narrower than the northern one, and is, therefore, cooled to a greater extent by winds from the sea.

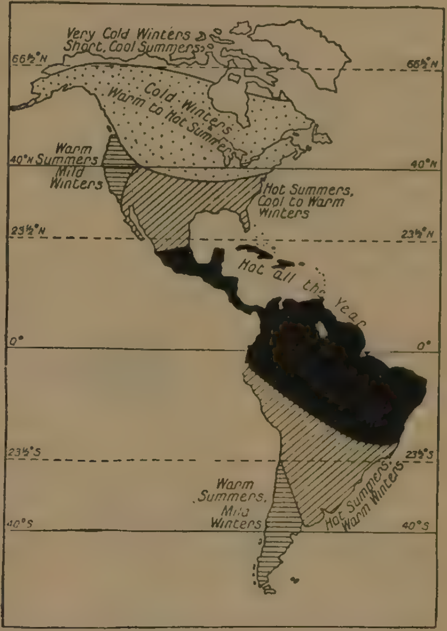


FIG. 65. NORTH AND SOUTH AMERICA—TEMPERATURE

(3) **Natural Regions.** Those who have studied Africa will remember that on the western sides the natural regions resemble a see-saw. The same is true for the western sides of the Americas. Central America and Colombia, with their hot climate, may be called 'Jack-on-both-sides.' To south and north are the **hot deserts**—the Atacama in South America and the Colorado Desert in North America. Then come the **Mediterranean** regions of Middle Chile and California, both of which have hot, dry summers, and warm, wet winters. These are succeeded by the **West European**

regions of Southern Chile and British Columbia. North America has an 'extra man' in the **Arctic** region of Alaska, which has no counterpart in South America.

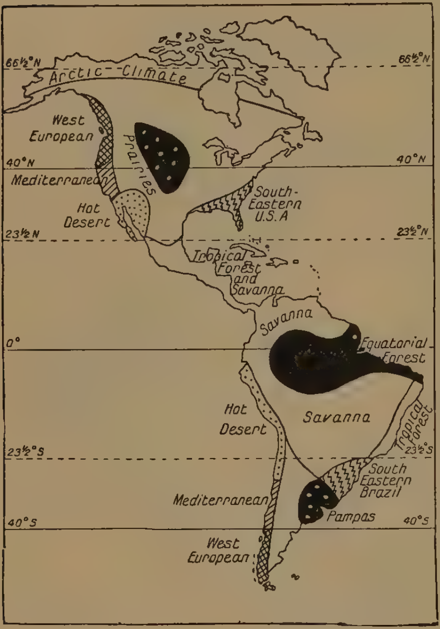


FIG. 66. NORTH AND SOUTH AMERICA—CLIMATIC CONDITIONS

In the centre and east of the continents, however, there is little similarity between the natural regions. There is nothing in North America corresponding to the great equatorial forest of the Amazon; and only the Mexican Plateau can be said to resemble the savanna-lands of South America — the campos of Brazil and the llanos of Venezuela. The **pampas** of South America, however, have their counterpart in the **prairies** of North America, and south-eastern Brazil resembles, in some ways, south-eastern United States. But all the central and eastern parts of South America are quite warm in winter, whereas the corresponding parts of North America have cold winters.

The greatest difference of all is to be found in the parts farthest from the Equator. In the north of Canada are vast expanses of coniferous forest and tundra, which have no counterpart in South America.

(4) **The People and their Work.** We would expect from the above study of the natural regions, that in some parts of

North America the people will live and work in the same way as in corresponding parts of South America. It is true that fruit is grown in California, as in Middle Chile; that the prairies and the pampas are wheat lands; and that south-eastern United States grows some of the same crops as south-eastern Brazil. But even in these districts, which Nature made very similar, there are great differences which are due mainly to the way men have used their opportunities. North America, unlike South America, was originally very thinly peopled and was colonized in the main by people from Britain and north-western Europe, where industry and agriculture were already highly developed. This helps to account for the fact that the northern continent is far more prosperous and densely peopled than the southern continent. Nature, too, has favoured North America by giving her great stores of coal, iron, oil, and other minerals.

EXERCISES

1. From your atlas copy on to an outline-map of the world the 80° isotherm for January and for July. Shade the area which is over 80° F. in both months. What do you notice about the position of this area?

2. On an outline-map of the world mark and name the hot deserts of each continent. Say why in most cases these deserts do not reach the east coast of the continent.

3. On an outline-map of the world, mark and name the temperate grasslands of each continent.

4. Draw a map of South America over one of North America, reversing the former so that, for example, 40° S. latitude falls over 40° N. latitude and 50° S. over 50° N.

State the differences between the two continents which are emphasized by the resulting map.

CHAPTER X

CANADA

INTRODUCTORY STUDIES

THE BIRTH AND GROWTH OF A GREAT DOMINION

The first Europeans to discover America were Norsemen. Under the leadership of Eric the Red they sailed from Iceland to Greenland in A.D. 982. Twenty years later, Leif, the son of Eric, visited the coast of Nova Scotia, which he called Markland, and the coast of New England, which he called Wineland.

Accounts of their voyages were written in the Norse poems, called sagas, but for many centuries these were thought to be merely stories. When **Sebastian Cabot,** in the service of England, explored parts of the shore of eastern Canada in 1497, no one had the slightest idea that Norsemen had visited the coast nearly five hundred years before, and he is generally spoken of as the discoverer of Canada.

Nearly forty years later, **Jacques Cartier,** in the service of France, explored the estuary of the St Lawrence, and tried to establish a French colony near Quebec. The Indians called this district 'Kanata,' or 'The Settlements,' and it is from this that the name Canada is derived.

Cartier's attempts at colonization were a failure, and the real founder of Canada was **Samuel de Champlain,** who, in 1608, built a fort at Quebec, and gradually extended French influence as far as the Great Lakes.

Another great French explorer was **Robert La Salle,** who, in 1666, set up a farm and trading-post on the banks of the

St Lawrence, a few miles west of Montreal. He believed that by following the St Lawrence and other rivers which the Indians spoke of, he might be able to find a way to the Pacific, and so to China. He talked so much about the idea, that, in derision, people called his farm La Chine (China). The St Lawrence rapids, which are situated just above La Salle's farm, are still called the Lachine Rapids.

La Salle did not, of course, find a way to China; but he explored the Great Lakes, crossed to the Mississippi, and sailed down that river to the Gulf of Mexico.

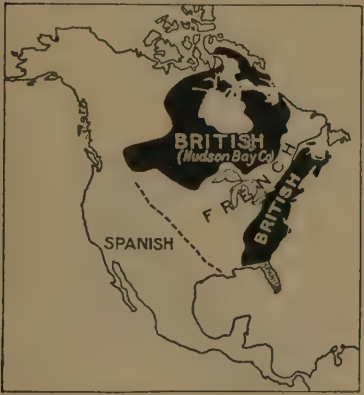


FIG. 67. N. AMERICA IN 1713

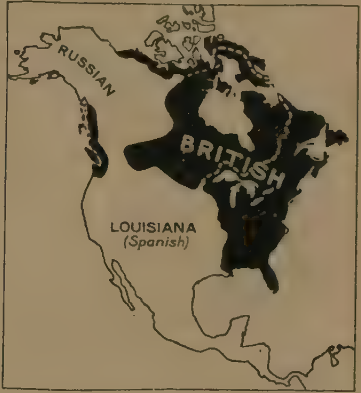


FIG. 68. N. AMERICA IN 1763

As a result of the labours of Champlain, La Salle, and others, France claimed the right to both the St Lawrence and the Mississippi Basins, though Britain held vast territories on each side. On the east coast of the continent the New England States had been established by the Pilgrim Fathers and others, while northern and central Canada had been won for Britain by the enterprise of the Hudson's Bay Company.

During the eighteenth century there was a great struggle between France and Britain for the possession of the continent. In 1759 General Wolfe captured Quebec, and a year later France surrendered Canada to Britain, retaining only two small islands, St Pierre and Miquelon, near Newfoundland.

In 1867 the Dominion of Canada was formed, but it included at first only Quebec, Nova Scotia, New Brunswick, and Ontario. Three years later, the Hudson's Bay Company gave up its claim to the lands it had ruled so long, and in 1871 British Columbia became part of the Dominion, after having obtained a promise that a trans-continental railway should be built to link her to eastern Canada. Prince Edward Island joined the federation in 1873, and Newfoundland became part of the Dominion of Canada in 1949.

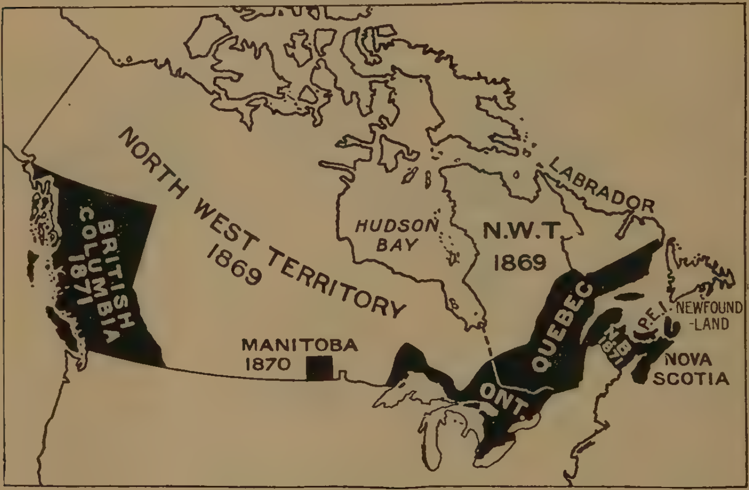


FIG. 69. CANADA IN 1873

GETTING ACQUAINTED WITH THE MAP OF CANADA

(A) Fig. 70 shows the political divisions of Canada. Trace the shapes on to a piece of stiff paper, cut them out, write their names correctly, including those of the numbered parts, and see how quickly you can fit them in their proper places. (Note that Newfoundland, with Labrador, is now part of the Dominion of Canada.)

(B) Make a jumbled-letter map of the chief lakes and rivers of Canada, and another showing the chief towns.

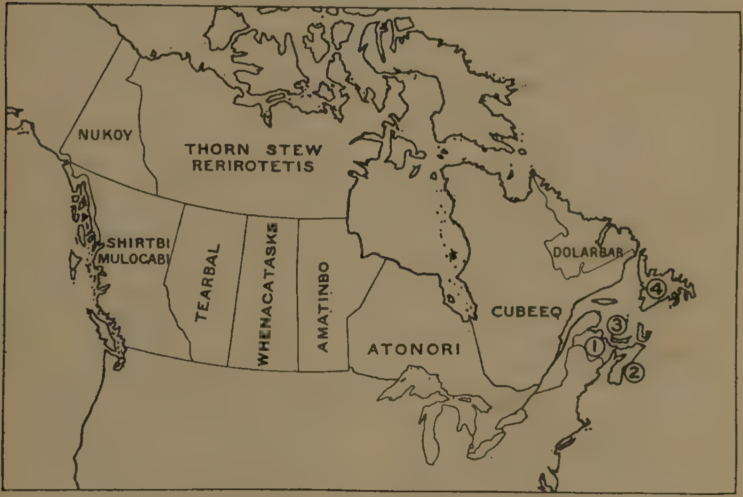


FIG. 70. JUMBLED-LETTER MAP OF CANADA

Change with your partner, and see how quickly you can solve his map.

(C) Study physical, political, and vegetation maps of Canada, and state: (*a*) The names of the three Maritime Provinces (1, 2, 3 on fig. 70). (*b*) The three Prairie Provinces. (*c*) The three provinces which are partly in the Tundra region. (*d*) Three provinces which are almost entirely forested. (*e*) The two provinces which are most mountainous. (*f*) The provinces which have a shore line on Hudson Bay. (*g*) The province which has the Great Lakes on its southern side.

(D) Find on the map: (*a*) Towns or physical features named after famous Englishmen. (*b*) Physical features named after animals. (*c*) 'Funny' names, such as Medicine Hat. (*d*) A town with the same name as the capital of one of the states of Australia. (*e*) Towns named after English towns.

A HOLIDAY TOUR THROUGH CANADA

Let us imagine that we have the good fortune to be able to spend a summer holiday travelling across Canada and 'seeing the sights' of the country.

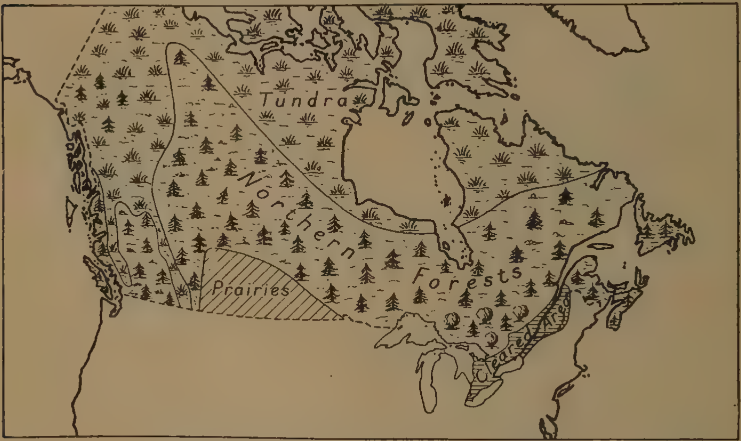
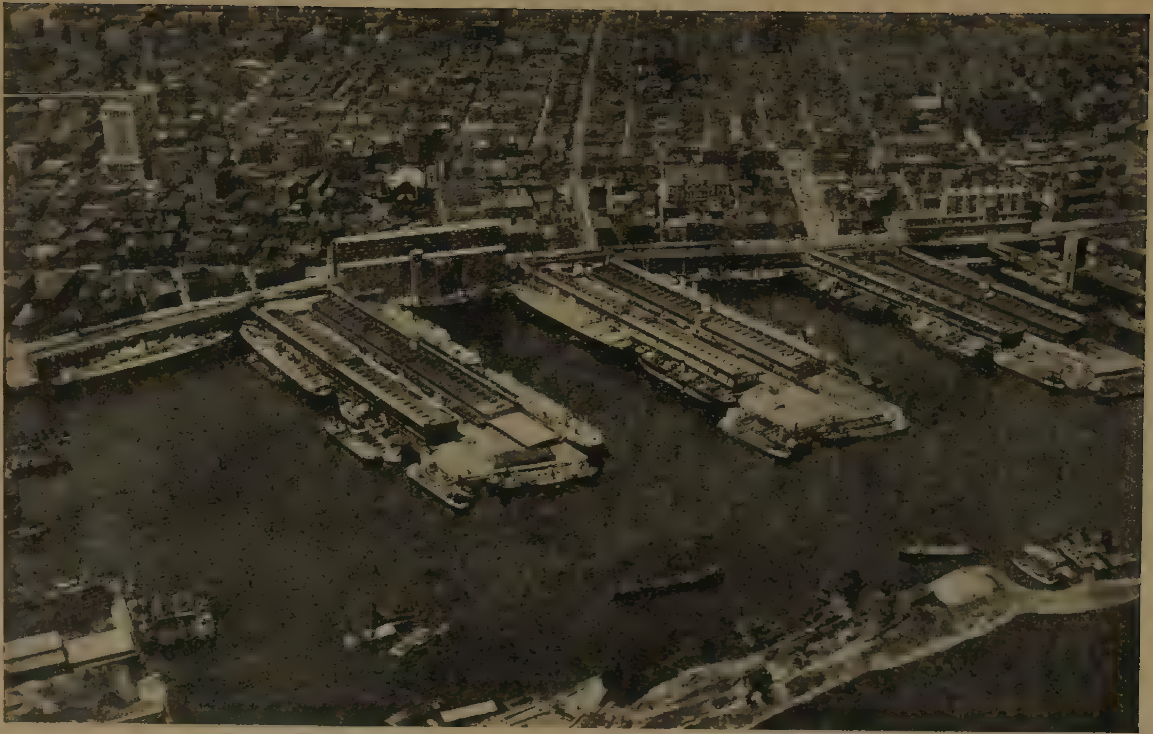


FIG. 71. THE VEGETATION OF CANADA

Four or five days after leaving Liverpool or Southampton we should enter the St Lawrence estuary, and thirty-six hours later we should land at the historic city of **Quebec**, which gives us 'an Old World welcome to the New World,' for many of the old French buildings, gabled houses, and cobbled streets still remain. Even where old buildings have been destroyed they have been replaced by new ones built in the old style.



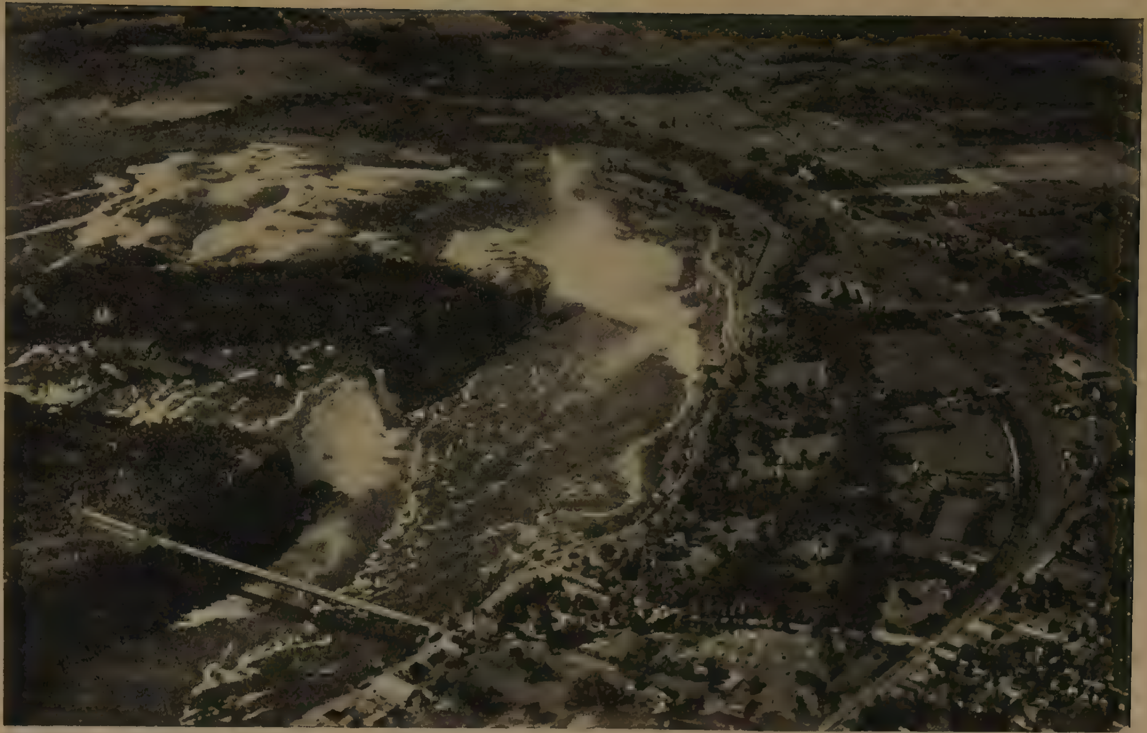
High Commissioner for Canada

FIG. 72. MONTREAL HARBOUR

Seven miles upstream is the famous Quebec Bridge, by which the Canadian National Railway crosses the St Lawrence. It is over a mile long, with a central span of 1,800 feet. The first two attempts to erect the bridge ended in disaster. In 1907, when one arm was nearly completed, the structure collapsed, and seventy-five men were drowned. Work was recommenced, and in 1916 all was ready for raising the central part into position from the barges on which it rested. No sooner had the weight been taken by the huge cranes than the framework began to buckle and twist, and in a few minutes the span fell in a crumpled mass into the river. In 1917 another span was in readiness, and this time was safely fixed in position. (See fig. 88.)

From Quebec we may go by train or steamer to **Montreal,** the largest city, chief port, and chief commercial and manufacturing centre of Canada. It is, consequently, a very different city from Quebec, and has long, straight streets crossing each other at right angles and flanked by huge skyscrapers, as in all typically 'American' cities. Yet, strange to say, Montreal is the second largest French-speaking city in the world. This is because more than half its people are descendants of the original French colonists, and still speak the language of their ancestors, although they are, of course, not Frenchmen, but loyal citizens of the British Commonwealth.

The next stage of our journey takes us to **Ottawa,** the capital of the Dominion of Canada. Here we branch off the main trans-continental railway route to visit the Lake Peninsula, the tongue of land between Lakes Huron, Erie, and Ontario. This is a rich farming district and busy manufacturing area, and here are situated some of the largest cities of the Dominion. From **Toronto,** the capital of the province of Ontario, we may sail across the lake to visit the Niagara Falls—the 'thundering waters,' as they



High Commissioner for Canada

FIG. 73. AIR VIEW OF NIAGARA FALLS

were called by the Indians. Here the Niagara River, which flows from Lake Erie to Lake Ontario, plunges over a mighty cliff known as the Niagara Escarpment. Both the Escarpment and the Falls owe their existence to a bed of hard limestone which overlies softer shales (see fig. 74). The water cannot easily wear away the limestone, but it quickly eats into the softer rock underneath, thus undermining the limestone. Every now and then great blocks of stone fall from the overhanging ledge, thus causing the Falls to move backwards a few feet—they are, indeed, working backwards at the rate of five feet per year.

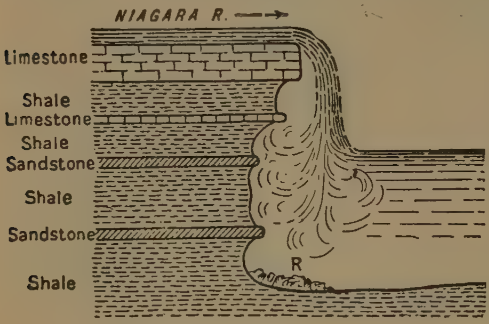


FIG. 74. SECTION THROUGH NIAGARA FALLS

Thousands of years ago the Falls were seven miles downstream, and the path by which they have travelled backwards is marked by a steep-walled gorge through which the river surges on its way to Lake Ontario.

Next to the Falls themselves, the most interesting features of Niagara are the great electricity stations. In order to utilize all the power available, a canal has been made to Queenston at the foot of the gorge. Thus a drop of three hundred feet is obtained, instead of the one hundred and sixty feet at the Falls. The falling water drives huge turbines, and these in their turn drive the dynamos which generate the electricity.

Returning to Toronto, and then continuing our journey westward around the northern shores of the Great Lakes, we soon enter a region of forest and bare rock. This is part of the **Canadian** or **Hudson Bay Shield**, a vast expanse of hard, old rock which was scraped almost bare of soil by the glaciers of the Ice Age.

Hour after hour we shall see from the carriage window a monotonous succession of dark forests, relieved only by sudden glimpses of lakes and streams, or isolated log-cabin settlements. Almost a thousand miles beyond Toronto we come to the Lake of the Woods, and soon afterwards we enter the **Prairie Region**—'long, flat lands, rolling off to the horizon in a vista of green and ripening gold.'

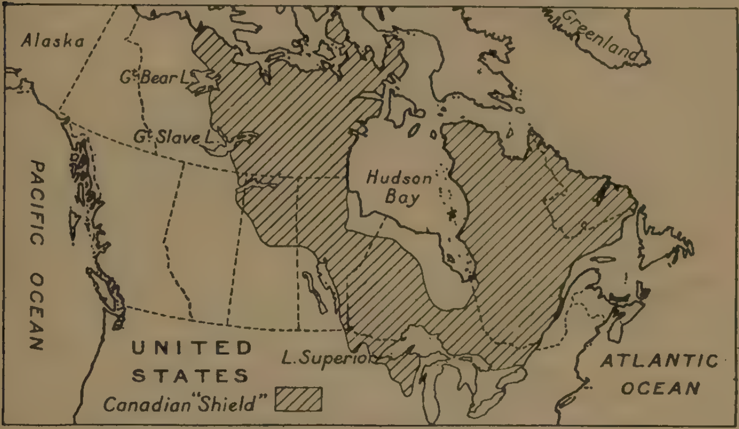


FIG. 75. THE CANADIAN 'SHIELD'

From **Winnipeg**, the 'city built on wheat,' to **Calgary**, at the foot of the Rockies, is a full day's journey by express train, and all the time we shall be passing through great fields of wheat, oats, and clover, with occasional patches of root crops, and sunflowers. (These last are stored in great bins called silos, and used as winter food for the cattle.)

Beyond Calgary the land rises quickly, and we are soon passing through deep passes in the front ranges of the Rocky Mountains. **Banff** is the centre for one of the

Rocky Mountains National Parks, which have been set apart by the Canadian Government as game-preserves and 'playgrounds' for tourists and holiday makers. In this 'park,' which is more than half the size of Wales, we shall find much to interest us—trail-riding, mountain-climbing, swimming in hot sulphur pools, boating on the lakes, and visiting Indians in their villages on the 'reservations' where they live their own life free from interference by the white man.

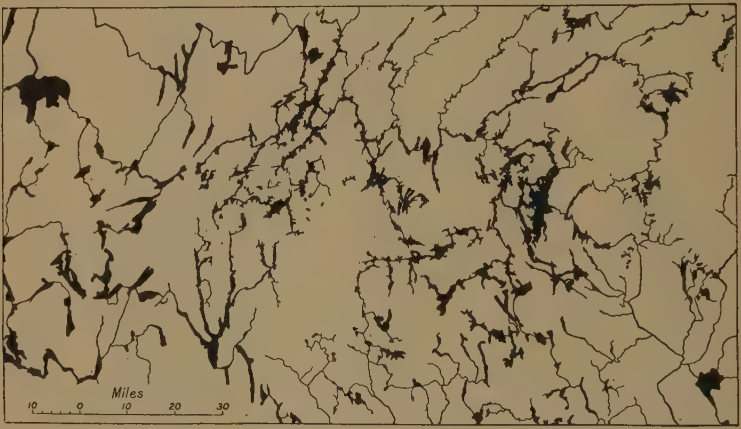


FIG. 76. A BIT OF THE NORTHERN FOREST AREA, SHOWING LAKES AND STREAMS

Beyond Banff and near the summit of the Rockies is the famous **Kicking Horse Pass**—so called because one of the earliest explorers was almost killed there by a kick from his horse. From the pass the railway descends into the deep valley of the Columbia River, rises again to cross the mighty ranges and plateaus which make up the province of British Columbia, and finally follows the Fraser Canyon to **New Westminster** and then on to **Vancouver**, the great port on the Pacific coast. On the return journey eastward we may take the more northerly route of the Canadian National Railway, which crosses the Rockies via the Yellowhead Pass and runs through the Prairie Provinces via Edmonton, Saskatoon, and Winnipeg.

Having now obtained a 'bird's-eye view' of the whole breadth of the great Dominion, let us return to the eastern seaboard, and look a little more closely at the various divisions of the country.

EXERCISES

1. Read an account of the life of one of the explorers or pioneers mentioned in this chapter; select one interesting incident, and be prepared to tell it to the class.

2. Prepare a five minutes' talk on one of the following subjects:

(*a*) Why I should like to visit Canada.

(*b*) The part of Canada I should most like to live in.

(*c*) 'The undefended frontier.' (Not a single fort exists on the boundary between the U.S.A. and Canada.)

3. Make a collection of labels from articles we import from Canada.

4. Canada is sometimes called 'Our Lady of the Snows.' Do you think this is a suitable title?

5. If you have a relative or a friend in Canada, ask him to send you a letter, which you can read to the class, describing his day's work and his recreations.

CHAPTER XI

THE MARITIME PROVINCES

THESE provinces, so called because no part of them is far from the sea, are: Nova Scotia (with which is included Cape Breton Island), New Brunswick, and Prince Edward Island.

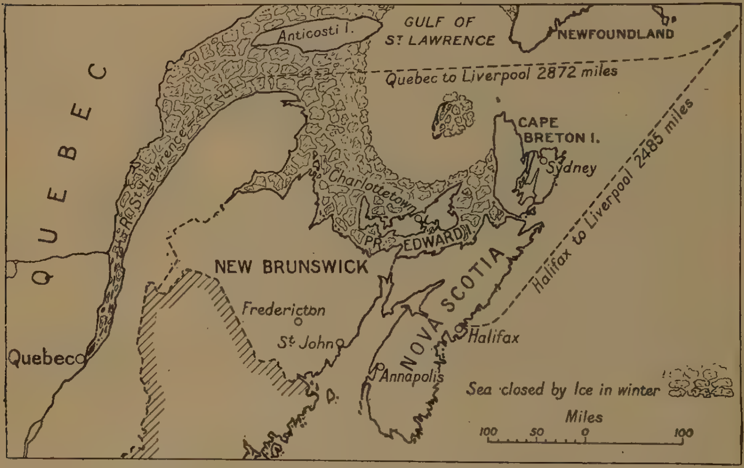
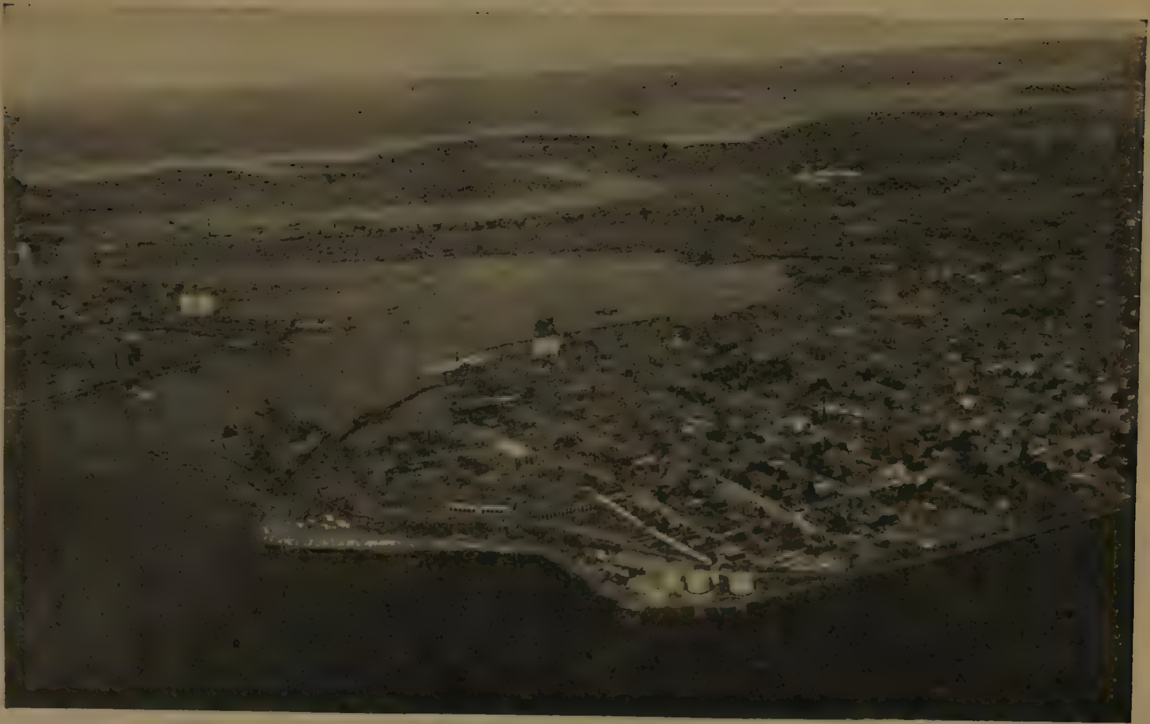


FIG. 77. THE MARITIME PROVINCES

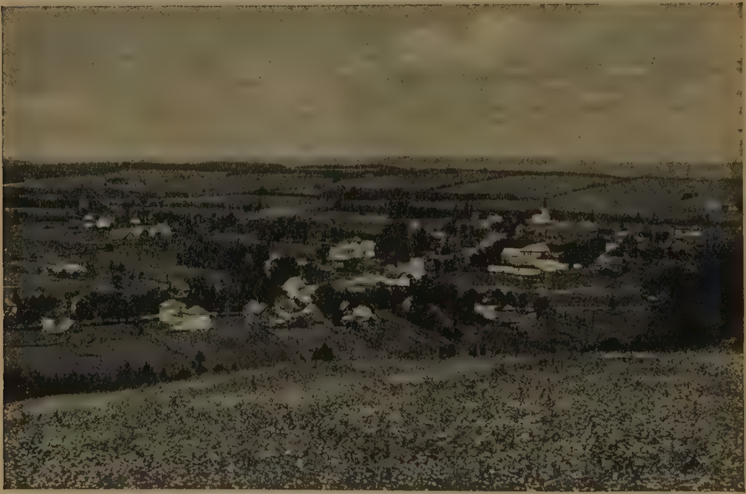
When we entered Canada on our imaginary holiday tour, we passed by these provinces. But if we were to visit Canada in winter, when the St Lawrence is frozen, we should have to land at either **Halifax** in Nova Scotia, or **Saint John** in New Brunswick. These ports are ice-free, because the sea around is warmed by the Gulf Stream. They have, therefore, become the great winter ports of eastern Canada, as Montreal and Quebec are the summer ports.



High Commissioner for Canada

FIG. 78. THE HARBOUR OF SAINT JOHN, NEW BRUNSWICK

When we think of Canada, we generally picture to ourselves rolling prairies and vast wheat-fields stretching as far as the eye can see. As will be seen by a glance at fig. 79, the landscape in the Maritime Provinces is not at all like that of the Prairies. The land is for the most part hilly, or even mountainous, and much of the surface is covered with dense forest. Farming, which is the chief occupation of the people, is carried on in much the same way as in Britain, except that no work can be done on the land in winter, as the weather is then very cold. The field crops, too, are those which are most commonly cultivated in our own country—hay, potatoes, turnips, vegetables, oats, and wheat.

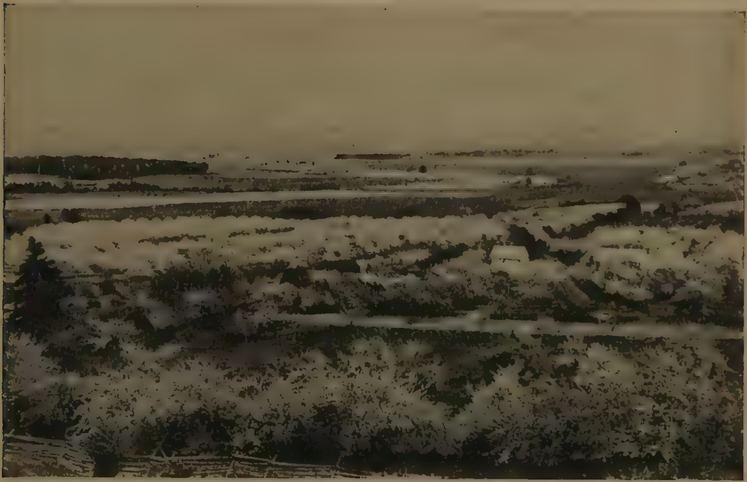


C.P.R.

FIG. 79. RURAL SCENE IN NEW BRUNSWICK

There are, however, three regions specially interesting for particular types of farming.

(*a*) **The Fundy Dyke-lands.** The Bay of Fundy is world-famous for its very high tides, which rise very quickly and form 'bores' in the lower reaches of the rivers. When the tides recede vast mud flats are left. Large areas of such land around the head of the bay were reclaimed by the first settlers, who drained the marshes and built dykes to keep out the sea, thus creating some of the most fertile farms in the world. One great advantage of these lowlands is that they can easily be re-fertilized by breaking down the dykes, thus allowing the sea to flow in and cover the land with a layer of mud. The soil is so rich, however, that this is seldom necessary; indeed, some of the farms have been almost continuously cultivated since they were first reclaimed two hundred and fifty years ago.

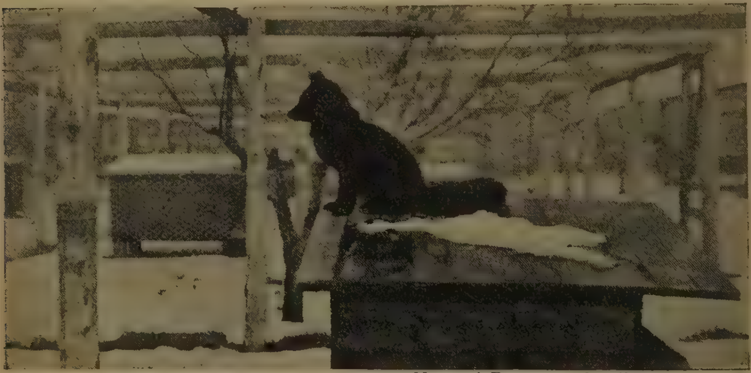


High Commissioner for Canada

FIG. 80. APPLE ORCHARD IN THE ANNAPOLIS VALLEY

(*b*) **The Apple Orchards of Nova Scotia.** In an average year Canada sends us one and a quarter million barrels of apples; of these, about one million barrels come from the Annapolis Valley of Nova Scotia. This valley, which is one hundred miles long and only a few miles broad, runs parallel to the Bay of Fundy, from which it is separated by a ridge known as North Mountain. Within the valley the farms are usually in narrow strips, having meadow land in the bottom, orchard land mid-way, pasture and wood above.

(*c*) **The Fox Farms of Prince Edward Island.** The silver fox has always been one of the most valuable fur-bearing animals of Canada. Some fifty years ago two farmers on Prince Edward Island tried the experiment of breeding foxes in captivity, so that they could obtain skins without the labour of trapping the wild animals in the forests. They succeeded so well that other farmers followed their example, and now over twenty thousand foxes, worth on the average £30 each, are kept on the fox farms of the island.



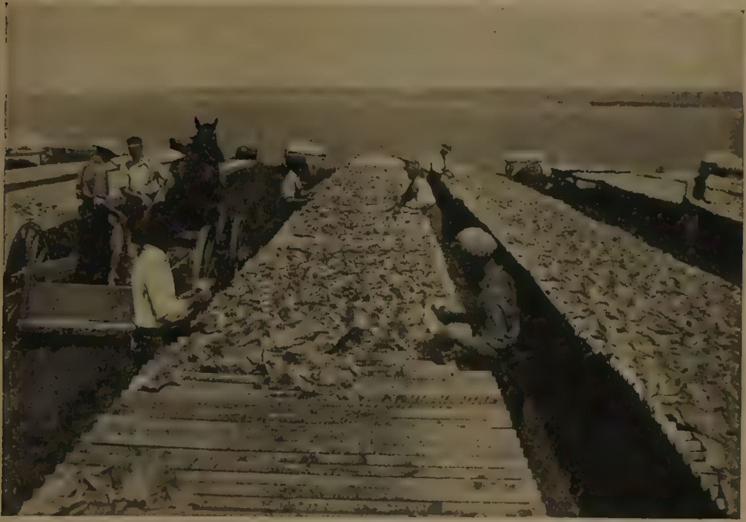
Natural Resources Intelligence Service

FIG. 81. ON A SILVER FOX FARM

The 'ranches' consist of a number of pens, each surrounded by a wire fence. This is sunk several feet into the ground to prevent the animals burrowing underneath it, while the top overhangs to prevent their climbing over. The whole ranch is surrounded by a similar guard fence.

Fishing is a very important industry in the Maritime

Provinces. The chief fishing grounds are the shallow 'banks' to the east of Nova Scotia and Newfoundland. These banks are specially rich in fish because great quantities of fish food are brought down from the Arctic Ocean by icebergs and by the cold Labrador Current. Cod-fishing is an arduous and hazardous occupation.[1] The fishing vessels are small schooners or motor boats, each of which carries fifteen to twenty men and a number of flat-bottomed boats, or 'dories.' When the fishing grounds are reached, each dory sets out from the 'mother' schooner laden with *trawls*—long ropes to which are attached about three thousand short cords, each carrying a baited hook. One man rows the dory, and the other 'pays out' the trawl, which is provided with anchors at each end to keep it fixed near the bottom,



Canadian Government Motion Picture Bureau

FIG. 82. LAYING OUT COD-FISH TO DRY

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[1] For interesting accounts of fishing on the Grand Banks read *Captains Courageous*, by Kipling, and *Fishermen of the Banks*, by J. B. Connolly.

and buoys at intervals to mark its position. When the trawl has been 'set' for some hours it is hauled into the dory and the fish taken to the schooner, where they are cleaned and packed in ice or salt.

When the hold is full, the schooner returns to the home port to land its cargo. There the fish are laid out on racks to dry in the sun, to prepare them for export to South America or to the Mediterranean countries of Europe.

Other fish which are caught in large numbers on the 'banks' are haddock, sardines, mackerel, tunny, and halibut; but lobsters, which are caught in the shallow waters near the coast, come next to cod in total value.

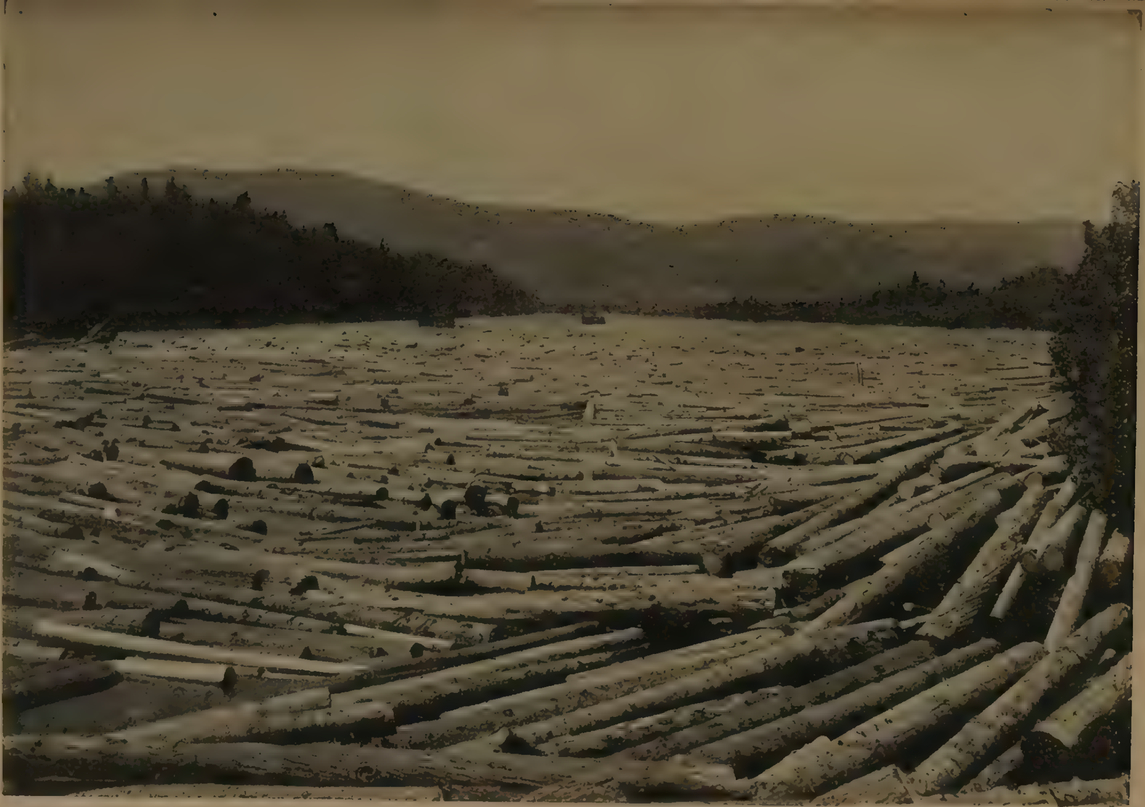
Lumbering. Forests cover three-quarters of the surface of New Brunswick, and half the surface of Nova Scotia. Consequently, lumbering is an important industry in both these provinces. Nowadays, however, most of the timber is made into wood-pulp, from which paper and artificial silk are manufactured.

Mining. There is only one important coal-field on the Atlantic shores of N. America. This is situated on Cape Breton Island near Sydney. Most of the coal is used in the smelting of iron ore which is mined in Newfoundland.

NEWFOUNDLAND

Newfoundland, with Labrador, was formerly quite independent of Canada, but became part of the Dominion in 1949, by the wish of the majority of the people.

There are some countries which we always associate with particular products. If Holland is mentioned, we think of Dutch cheese; if Denmark, Danish butter; if New Zealand, Canterbury lamb, and so on. In the same way we should associate the province of Newfoundland with cod-fish and newspapers, for cod-fishing and the making of wood-pulp are the outstanding industries.



High Commissioner for Canada

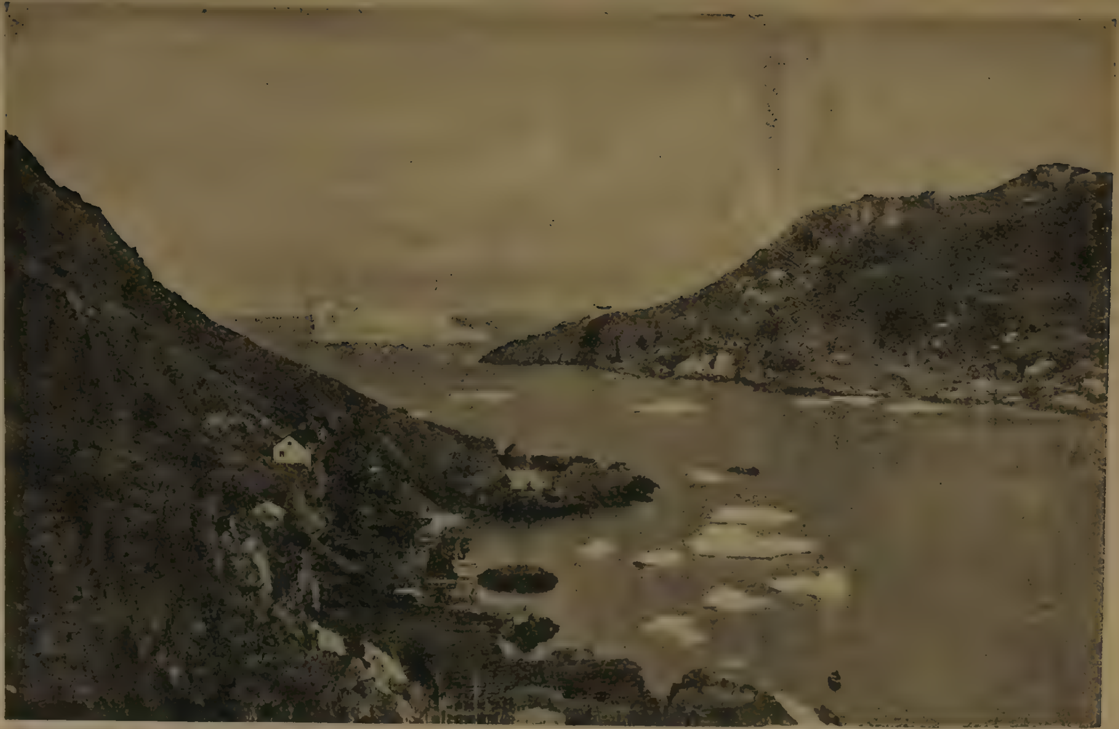
FIG. 83. LOGS ON A RIVER IN EASTERN CANADA

Cod-fishing is carried on during the summer months, in the way already described on page 111. Every year dried cod to the value of about £1,000,000 is exported—an average of about £25 to £30 a year for each man engaged in cod-fishing. Before the fishing season starts the men spend two months catching seals, from the skins of which good-quality leather is made, while the fat is melted down to make oil which is burnt in lighthouse lamps.

Dried cod-fish does not appeal to our tastes, so Britain is not a very good customer for Newfoundland's fish. Most of it is sent to the West Indies or Brazil. But we buy a very large share of her wood-pulp, which is used for making some of the most popular of British newspapers. The pulp and paper industries of Newfoundland have grown enormously in recent years, and the export of these commodities is now of greater value than that of the fish.

A third industry of Newfoundland is iron-mining. The ore, which is mined on Bell Island, is principally sent to Sydney in Nova Scotia, and smelted there with the local coal.

LABRADOR, which is politically a part of Newfoundland, is a wild and desolate country. Though it is larger than the British Isles it contains only about five thousand people, including Eskimos. The only settlements are around the coast, and the only occupation is cod-fishing. Labrador is known chiefly through the work of the heroic missionary, Dr Grenfell, who has devoted his life to the service of the 'live-heres,' as the permanent inhabitants are called by the Newfoundland fishermen who visit the coast in summer. A great new field of iron ore has recently been discovered in Labrador and will soon be producing raw material for the furnaces of Canada and the United States.



High Commissioner for Newfoundland

FIG. 84. THE BAY OF ST JOHN'S, NEWFOUNDLAND, IN WINTER

EXERCISES

1. Draw a sketch-map to illustrate the following statement:

'Halifax (Nova Scotia) is nearly 500 miles nearer the Equator than London. Yet its winter temperature is about 7° F. lower than that of London. This is accounted for chiefly by the fact that cold winds blow from the interior of Canada, while London has mild winds from the ocean.'

2. Draw a large map of the Maritime Provinces, and in each province put one dot for every 10,000 people. (Population of Nova Scotia 650,000; of New Brunswick 520,000; of Prince Edward Island 98,000.)

3. Draw diagrams to illustrate the following statistics:

Province	Value of dairy products	Value of fish caught	Value of timber cut
Nova Scotia	10·9	21	8·6
New Brunswick	9·2	11	21·4
Prince Ed. Is.	3·3	2·8	0·5

(Values in millions of dollars.)

Draw logs, fish, and pats of butter proportional in size to the values of timber, fish, and dairy products.

4. The chief exports of Newfoundland are cod-fish, cod oil and seal oil, pulp and paper, herrings, seal-skins, tinned lobsters, iron ore.

Write short notes about the production of each of these commodities.

5. Draw a sketch-map showing the summer and winter steamship routes from England to Canada.

CHAPTER XII

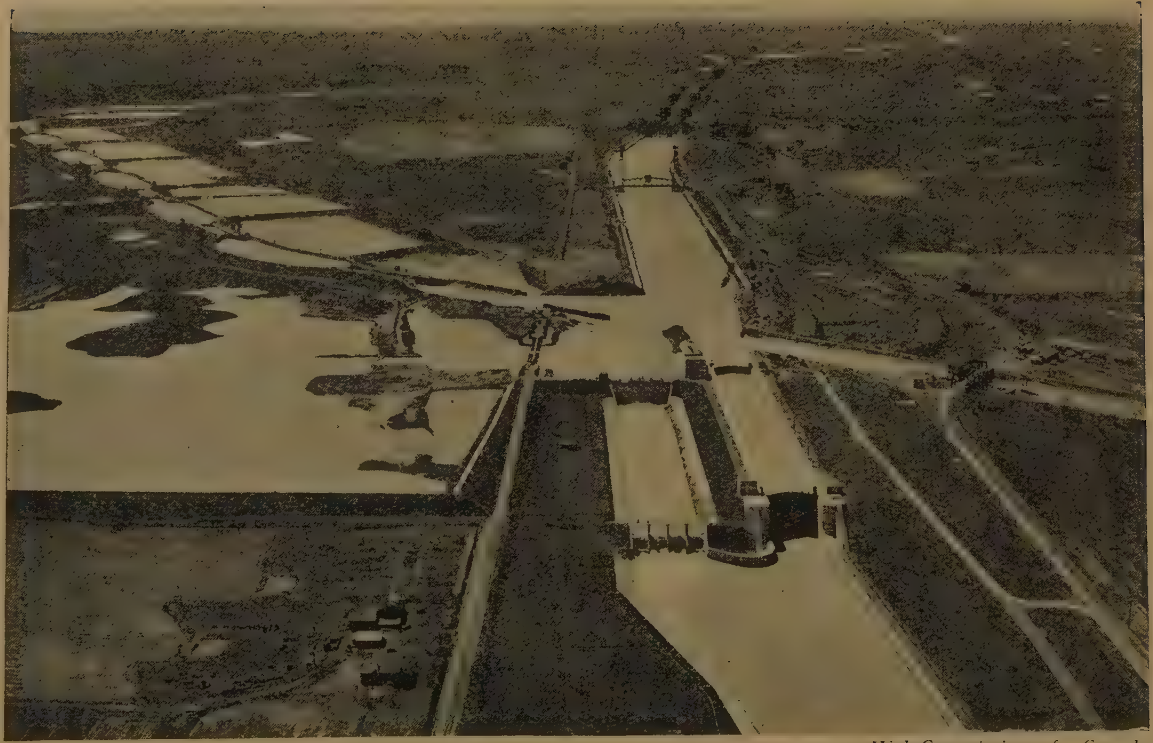
THE ST LAWRENCE BASIN AND THE GREAT LAKES

THE WORLD'S GREATEST INLAND WATERWAY

THE waterway formed by the St Lawrence and the Great Lakes stretches almost to the centre of the continent, and is nearly as long as the Atlantic is broad. In other words, Newfoundland is almost as near to Britain as it is to the head of Lake Superior.

This great waterway is, perhaps, Nature's greatest gift to Canada. Unfortunately, the 'gift' was spoiled by certain imperfections—rapids, shoals, and waterfalls which hindered navigation. Man has, however, done a great deal to improve Nature's handiwork. Between Quebec and Montreal the river has been dredged so that large ocean steamers can now get up to Montreal, though the largest liners have still to dock at Quebec. The greatest obstacle of all, Niagara Falls, is avoided by means of the Welland Canal, which has recently been enlarged so that it can accommodate big ocean steamers. Between Lake Superior and Lake Huron are the famous Sault Ste Marie Canals (usually called the 'Soo Canals'). These canals—one on the Canadian side of the river, and one on the United States side—were built to avoid the rapids (French, *sault*) of Sainte Marie. Though the Soo Canals are open for only eight months in the year, they carry four times as much shipping as the Suez Canal.

There still remains one stretch of the great waterway which cannot be used by large vessels. This is the part of



High Commissioner for Canada

FIG. 85. LOCK ON THE WELLAND CANAL

the St Lawrence between Lake Ontario and Montreal where the Lachine Rapids hinder navigation. The Government of Canada has now begun to construct, on their own side of the river, a canal to avoid these rapids. This will enable ocean steamers to reach the end of Lake Superior, in the very heart of the continent. In addition, Canada will be better equipped for manufacturing, as large supplies of hydro-electricity will be generated at the weirs situated near the locks.

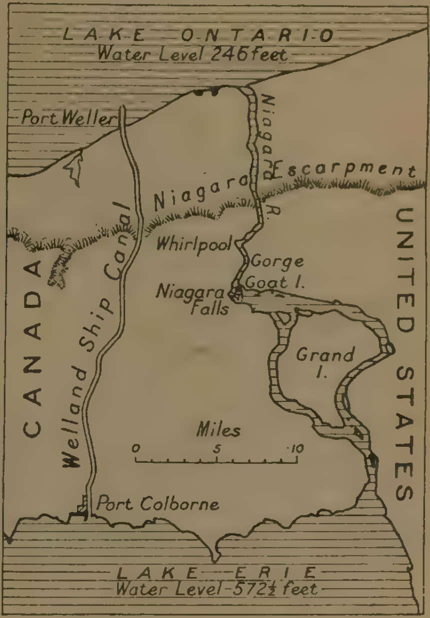
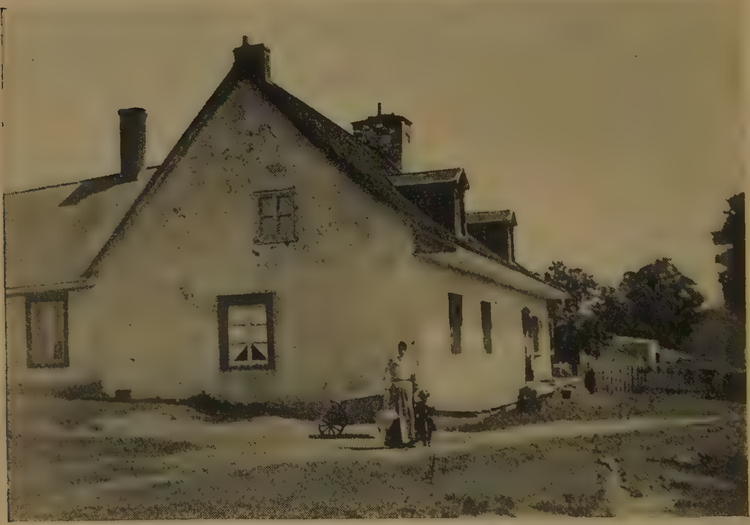


FIG. 85A. THE WELLAND SHIP CANAL

Dairy-farming is the chief occupation of the rural population in the strip of lowland on each side of the St Lawrence. The farmhouses are generally built on the bank of the river, and each farm is a long, narrow strip running at right angles to the river. In many parts the farmhouses are set so close together that the river bank appears like a village street, although a little distance inland the population may be very scanty.

The great drawback to dairy-farming in this region is the length and severity of the winters. Expensive weatherproof shelters have to be built, and enough food has to be grown in summer to feed the cattle through the winter. On the other hand, the district has a great advantage over other dairying countries of the Empire, such as Australia and New Zealand, in being nearer to Britain, so that it does not cost as much to send the butter and cheese to the 'market.'

Fruit Growing. Fruit grows well all along the St Lawrence valley, but the most noted fruit-growing district of eastern Canada is the **Lake Peninsula**, where, in addition to such 'English' fruit as apples and pears, warm temperate fruits such as grapes and peaches may be grown. One great advantage of the Lake Peninsula for fruit-growing is that it has warm summers, since it is the most southerly part of Canada—it is, indeed, in the same latitude as central Italy. Another advantage is that the Great Lakes moderate the winter cold, and make the springs milder than in other parts of Canada.



Ministère de la Voirie, Quebec

FIG. 86. FARMHOUSE IN QUEBEC

Manufacturing. Though we often think of Canada as primarily a farming country, she is also a very important manufacturing country. Indeed the output of her factories is of greater total value than that of her farms.

One very great advantage Canada has as a manufacturing country is that she has many large waterfalls. The water-power ran to waste for millions of years, but in modern times men have learnt how to use it by turning it into electricity. No country in the world, except the United States, generates as much hydro-electricity as Canada. As we have seen, one of the chief generating stations is Niagara Falls, but there are many others on both banks of the St Lawrence, and no industrial centre in Canada is far from a source of cheap hydro-electricity.

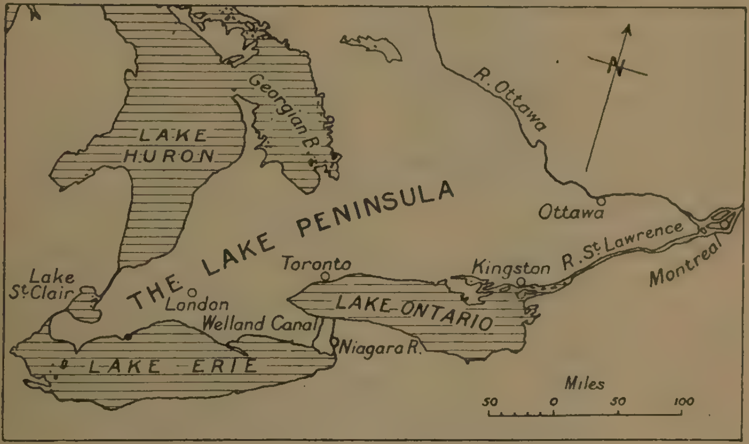
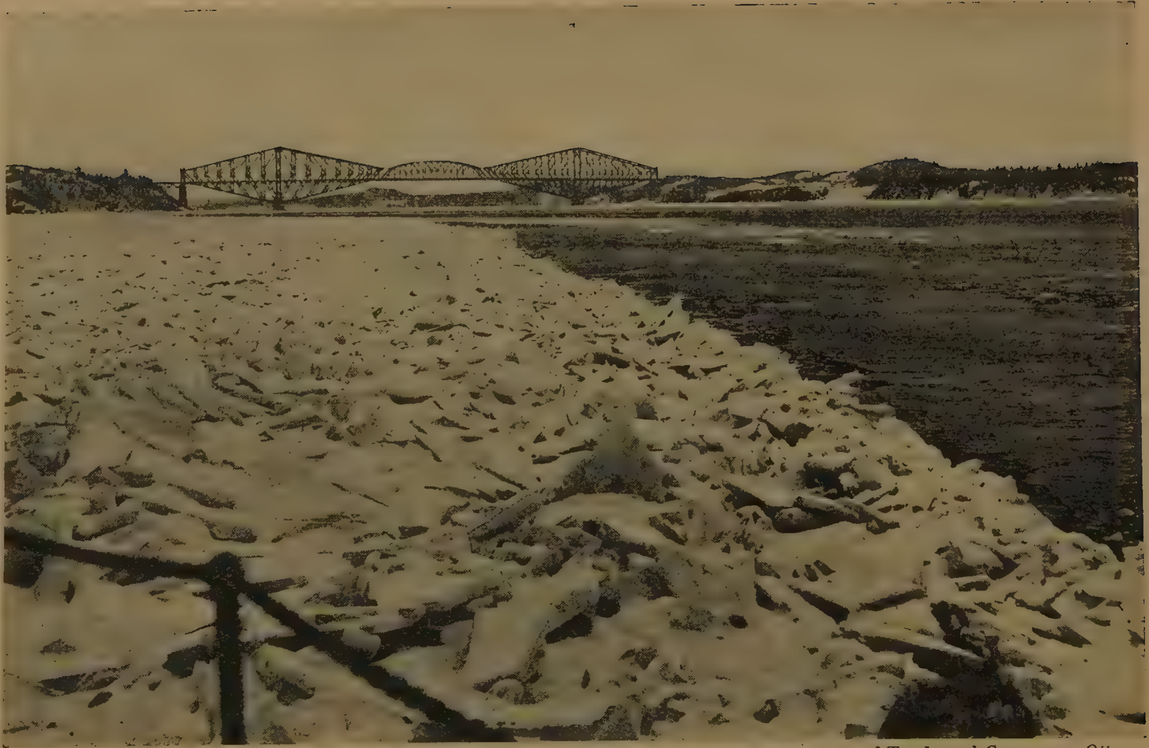


FIG. 87. MAP OF THE LAKE PENINSULA

As might be expected, Canada uses her own raw materials for her manufactures, the chief products being wood-pulp and paper, flour, metals, butter, cheese, and preserved meat.



Department of Trade and Commerce, Ottawa

FIG. 88. QUEBEC BRIDGE SHOWING PASSAGE OPENED BY ICE-BREAKERS

THE GREAT CITIES

Quebec, which was founded by Champlain in 1608, is the oldest city in Canada. It has always been important because of the natural advantages of its site.

The cliff above which it is built made defence easy; the mouth of the Charles River, which enters the St Lawrence at this point, provided a sheltered anchorage for ships; and the fact that it was the natural head of ocean navigation gave it great advantages for trade. In modern times, the deepening of the St Lawrence up to Montreal has robbed it of much commerce, but, as we have seen, it is still an important passenger port. It is also one of the chief manufacturing cities of Canada, its specialities being leather goods and paper.

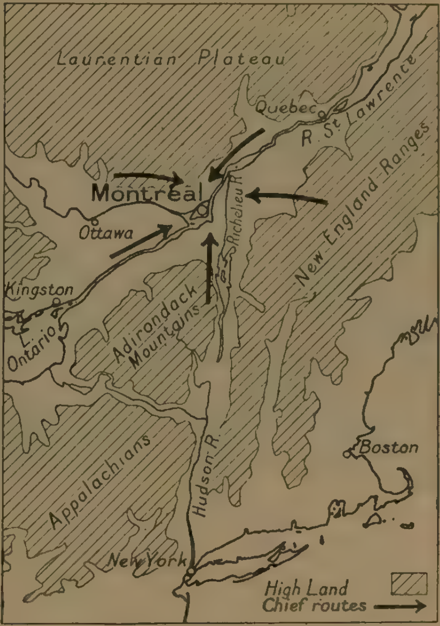


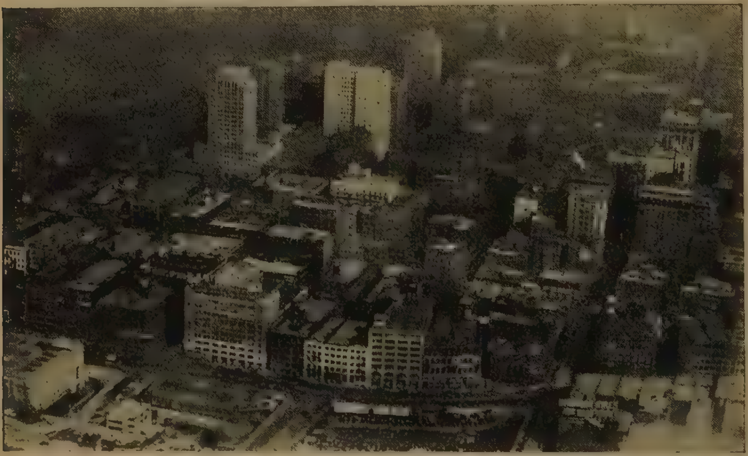
FIG. 89. SITUATION OF MONTREAL

Montreal, the largest city of Canada, is situated at one of the most important 'cross-roads' of North America (see fig. 89). The routes which radiate from it are:

(1) Down the St Lawrence to the Atlantic.
(2) Up the Ottawa River to Ottawa and central Canada.
(3) Through the Champlain-Hudson gap to New York.
(4) Up the St Lawrence to the Great Lakes. Though

this route cannot yet be used by large steamers, much traffic is brought to Montreal by canal boats and by the railways which follow the St Lawrence Valley.

Ottawa, the Dominion capital, is situated on the Ottawa River, just below the point where waterfalls set a limit to navigation. The city is one of the chief centres of the lumbering and paper industries in eastern Canada. Electrical power to run the sawmills is derived from the nearby waterfalls.



Ontario Tourist and Publicity Bureau

FIG. 90. BUSINESS QUARTER OF TORONTO

Toronto, the capital of Ontario, is the second largest city in Canada. It is an important lake port, and is served by many trunk lines of railway, while it obtains cheap power from Niagara Falls and other hydro-electric stations. It has, therefore, developed many industries, the chief of which are iron- and steel-working, shipbuilding, meat-packing, and flour-milling. The numerous skyscrapers give the city a characteristically 'American' appearance.

Other important manufacturing centres in the Lake Peninsula are **Hamilton**, **London**, and **Windsor**.

EXERCISES

1. Draw a map of the Lake Peninsula and the St Lawrence Basin, and on it mark the following cities, with circles roughly proportional to the population in 1951: Quebec (164,000), Montreal (1,021,000), Ottawa (202,000), Toronto (675,000), Hamilton (208,000), London (95,000), Windsor (120,000).

2. For each of the following countries draw a 'waterfall' proportional in height to the total water-power used for making electricity.

Country	Horse-power	Country	Horse-power
U.S.A.	11·7 millions	France	2·0 millions
Canada	7·0 ,,	Norway	1·9 ,,
Italy	2·3 ,,	Great Britain	0·2 ,,

Why is Canada so high on the list, and why is Great Britain so low?

3. Complete the following sentence:

From ——— in South America much ——, or ——— ore, is sent to the St Lawrence valley, where it is smelted in ——— furnaces.

4. The chief mineral mined in the St Lawrence Valley is *asbestos*, which is obtained south of Quebec. Find out what this substance is like, and some of the uses to which it is put.

5. Make notes of articles, in shops or your home, which come from eastern Canada.

CHAPTER XIII

THE GREAT LONE LAND

If we look at a population map of Canada we see that practically all the people live in the extreme south. The thinly peopled northern part is made up of two natural regions, the **Coniferous Forests** and the **Tundra.** The climate, vegetation, and life of the people are so different in these two regions, that they must be considered separately,

LIFE AND WORK IN THE TUNDRA

This part of Canada is often called the 'Frozen North,' as if it were a land of perpetual snow and ice. It is, of course, very cold in winter—so cold, indeed, that 'a man may throw a bucket of water into the air and it will reach the ground in the form of ice. Meat or butter must be cut with an axe or saw, and chips fly off it.'[1]

For a month or two in summer, however, the weather is much hotter than in Britain, the surface of the ground is thawed to a depth of a foot or so, and the plains near the Arctic Coast are carpeted with grass and flowers.

These treeless plains are inhabited by the **Eskimos.** The lives of these primitive people consist mainly in finding the answer to two big questions: 'How can we keep warm during the long, cold winter?' and, 'How can we get food when we can neither cultivate the ground nor keep animals for meat and milk?' Let us see how they answer these questions. Cold-proof clothing, the first essential, is obtained by using the skins of seals, bears, and wild reindeer.

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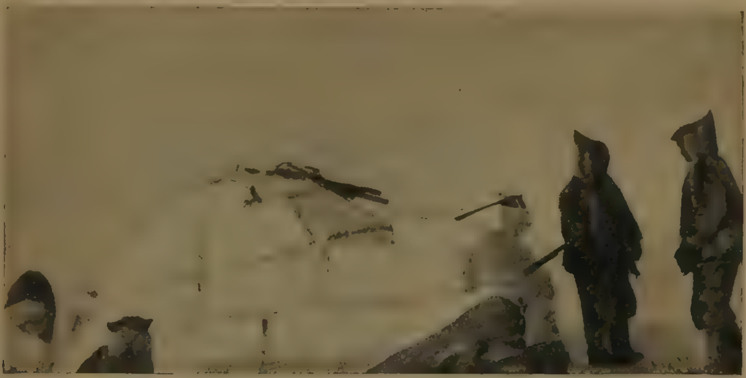
[1] M. H. Mason, *The Arctic Forests.*

Cold-proof houses can be made by using the coldest of all building materials—snow. *Igloos*, such as those shown in fig. 91, can be made very warm indeed by burning oil lamps inside; in fact, the colder the weather the warmer the house can be made without melting the walls.

It must not be thought, however, that all Eskimos build snow houses; on the contrary, 'the only region where the snow house is the main winter dwelling is the Canadian mainland between Hudson Bay, Cape Parry, and the islands north of Canada.'[1] Some Eskimos build winter houses by piling earth over a framework of driftwood or whalebone, while others now build them entirely of timber which they have purchased from the white trader. The summer dwellings are tents made of deerskin supported on poles.



High Commissioner for Canada

FIG. 91. AN IGLOO

Now let us see how the Eskimo tackles the problem of food supply. In summer his chief occupation is fishing, which is carried on from small boats known as *kayaks*. These consist of canvas or sealskin stretched over a framework of wood or whalebone, so as to leave only a small hole at the top. The Eskimo sits in the bottom of the kayak, and laces the edge of his sealskin cloak around the rim of the hole, so that the boat is made absolutely watertight. Thus equipped, he fears no storm, and even if capsized and thrown head downwards in the water, he can right himself by a dexterous twist of the paddle.

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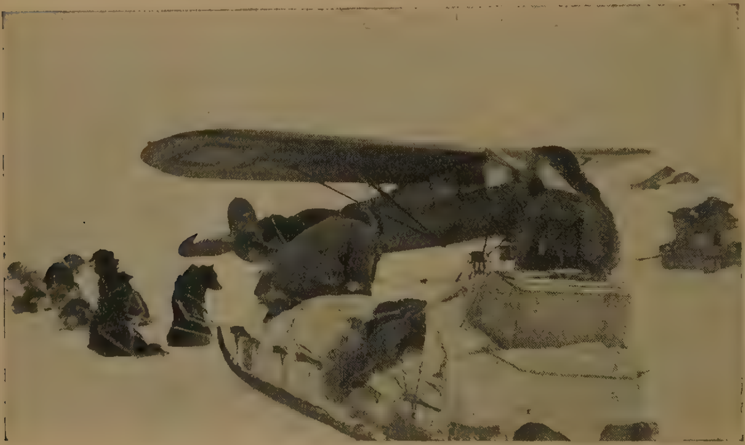
[1] H. V. Stefansson.

In autumn, the Eskimo spends most of his time hunting the caribou, or wild reindeer. The flesh is dried for winter use, and the hides are preserved for clothing. In winter the chief occupation is sealing on the ice. As the seal is an air-breather it must keep breathing holes open in the ice. The Eskimo, having located a seal hole, stands, maybe for hours, with spear in readiness, awaiting the rising of the seal.



High Commissioner for Canada

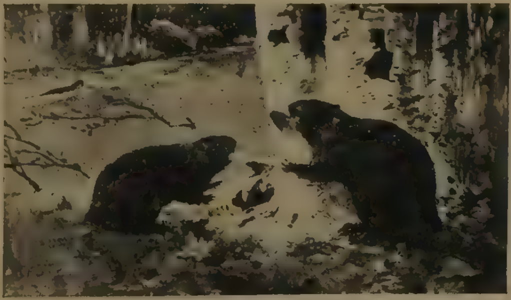
FIG. 92. CONTRASTING MODES OF ARCTIC TRAVEL

Such is still the life of the Eskimos in the more remote districts. In many parts, however, the coming of the white trader has caused great changes. Bows and arrows have been replaced by rifles, kayaks by motor boats, snow houses by wooden huts. To get these things the Eskimos must give in exchange something the white trader values, so instead of spending their time hunting and fishing, they trap the Arctic fox, for the sake of its valuable pelt.

Since he has to trap foxes during the time when he should be catching seals and hunting caribou for food and clothing, he must now go to the trader to procure these necessities. This change from an exclusive meat and fish diet to badly cooked bread, jams, tea, and canned foods, and from his own sensible skin apparel to the imported clothing of the white man has not been beneficial to the Eskimo, and has lowered his health and vitality, and left him with little resistance against the contagious diseases that always follow the advance of civilization.[1]

LIFE AND WORK IN THE FOREST REGION

THE INDIANS. Though it seemed formerly that the Red Indians were doomed to extinction, their numbers are now slowly increasing, and survivors of the race are usually to be seen around the trading posts, as far north as the edge of the forests. But their life is not in the least like that of the 'noble savages' of the story books. Few of them now use the 'tepee' or deerskin tent; instead, they live in one-roomed wooden shacks, which, though they may contain such



Natural Resources Intelligence Department

FIG. 93. BEAVER CUTTING A TREE

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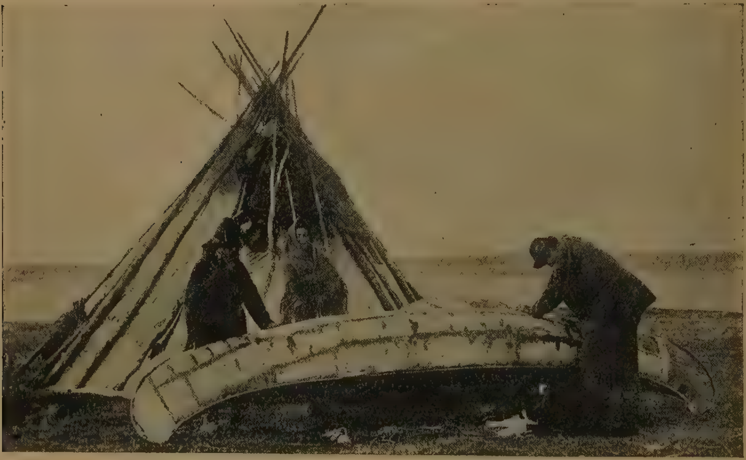
[1] Canadian Government Report.

modern improvements as oil stoves and iron bedsteads, are usually indescribably dirty. One Indian custom which is still maintained is that of trussing up babies in layers of dry moss, and then lacing them up tightly in cradles made of birch-bark. When the mother goes out, she slings the cradle on her back, but at other times it is suspended from the roof so that it can be rocked by a string when the baby cries.

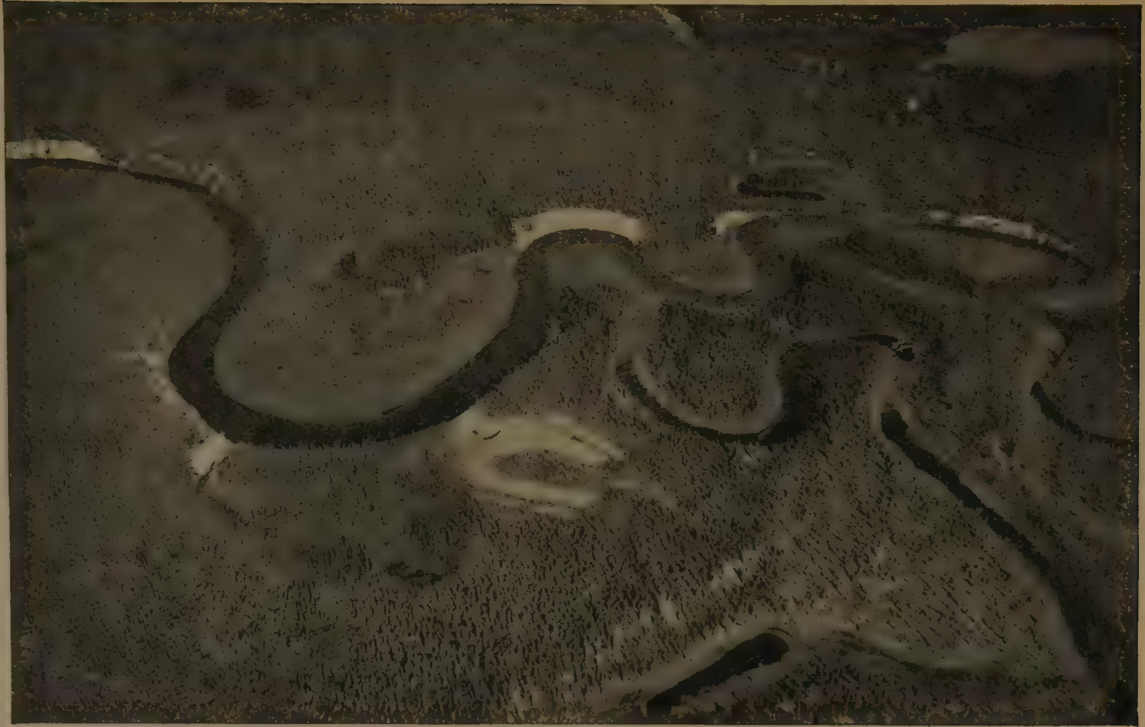


C.P.R.

FIG. 94. THE SUMMER TENT OF A TRAPPER ON THE BORDER OF HUDSON BAY

The Indians still retain the old style of dress, though for summer wear cotton and wool are now used in place of skins. Both men and women wear *parkees*, or hooded coats, shaped like smocks. Formerly, these were made of such valuable furs as marten or mink, but now only caribou skin or unsaleable fur is used. The garments of men, women, and children are usually decorated with beads or porcupine quills, dyed in bright colours, and arranged in intricate patterns.

Trapping is carried on chiefly by Indians and half-breeds. Like lumbering, it is chiefly a winter occupation. In



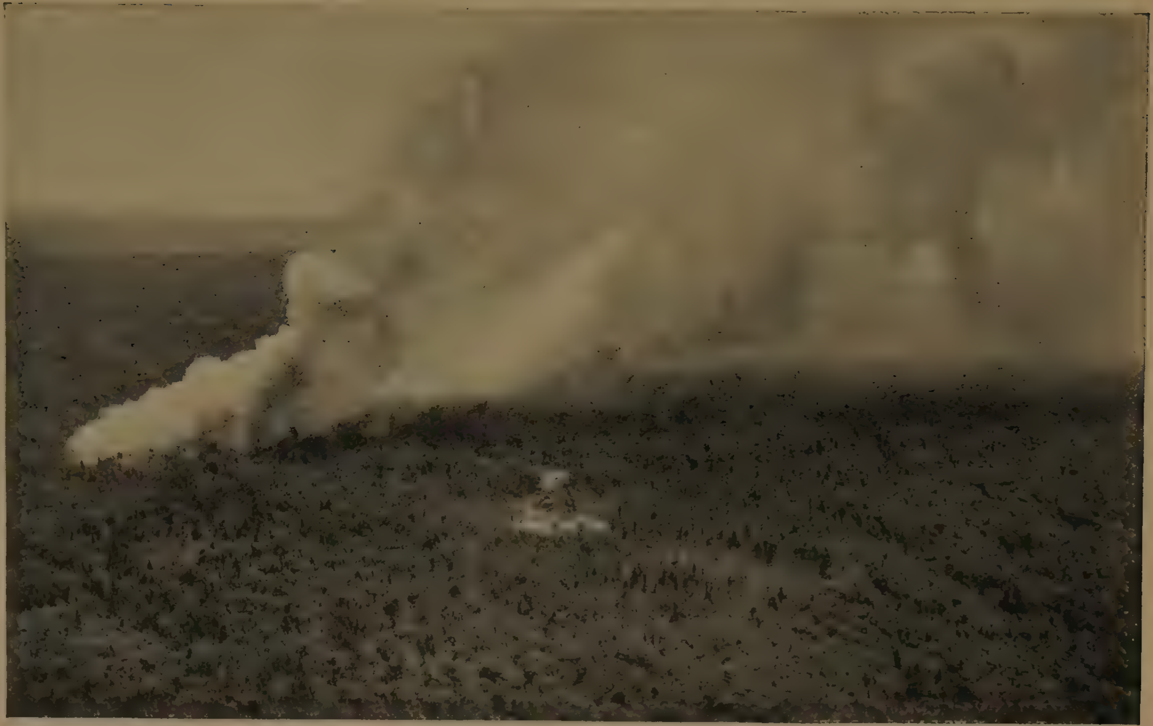
Canadian Air Force

FIG. 95. AIR VIEW OF THE NORTHERN FOREST (*cf.* Fig. 130)

summer, the trappers, with their families, fish for salmon in the rivers, or hang about the Hudson's Bay Company's trading post, enjoying a holiday and occasionally doing odd jobs for the manager. In autumn, the trappers set off in their canoes to their selected hunting grounds, where they will live during the winter in single-roomed log huts. As soon as snow covers the ground each man starts on his round of fifty or even a hundred miles, setting his traps at intervals. Then, week after week throughout the winter he goes the round of his traps, collecting marten, musk rat, and ermine, and tracking down other animals whose traces he sees in the snow. In spring, when the ice melts on the rivers, he returns to the trading station, there to sell his furs, and lay in a fresh stock of powder, shot, blankets, knives, flour, and so on.

The chief fur-bearing animals in order of the total value of the furs are mink, musk rat, silver fox, and ermine. Fur farming has been introduced, and there are now far more fur farms in Quebec and Ontario than in Prince Edward Island.

LUMBERING. The southern half of the Canadian Shield is covered with coniferous forest, and lumbering is one of the greatest industries of eastern Canada. The logs are cut in winter and hauled over the frozen snow to the river banks, where they are piled up to await the spring thaw. Then they are launched on their journey of perhaps a hundred miles or more downstream to the saw-mill or pulp factory. Specially skilled men, wearing spiked boots and wielding pike-poles, guide the logs down rapids, or through narrow places in the river. This is, of course, a very dangerous occupation, especially when a 'log-jam' occurs, and hundreds of logs are piled up like a great wall. In the old days it was the duty of one of the lumberjacks to pick out the 'key' log, and so break the 'jam.' This done, he must leap for dear life from log to log to avoid being crushed by the avalanche of timber behind him. Nowadays the danger

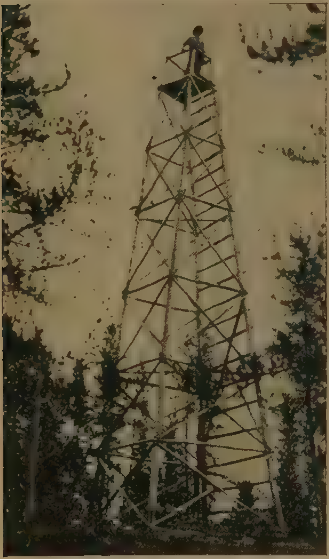


High Commissioner for Canada

FIG. 96. A FOREST FIRE

of such an operation is usually avoided by using sticks of dynamite to which time fuses have been attached.

Another interesting job in the Canadian forest is that of the forest ranger, whose duty it is to survey unexplored forest, direct lumbering operations on lands leased from the State, and save the forest from destruction by fire. This last is, perhaps, the most important part of the forest ranger's work, as may be judged from the fact that a few years ago it was estimated that more timber was destroyed by fire each year than was cut by the lumbermen. In order to reduce this loss, hundreds of observation towers, equipped with telephones and wireless, have been set up at intervals throughout the forests. In addition, the forests are regularly patrolled by light aeroplanes, whose pilots wireless news of any fires to the base camp, where large aeroplanes equipped with fire-fighing crews and apparatus wait in readiness for such an emergency.



High Commissioner for Canada
FIG. 97. FIRE RANGER'S LOOK-OUT

Most of the timber of eastern Canada is now used for making wood-pulp, from which paper, artificial silk, and a host of other substances, such as gun-cotton, celluloid, and artificial leather, are made.

MINING. During the hundreds of millions of years which have gone by since the Canadian Shield first became solid land, the rock has been repeatedly twisted, folded, and cracked, and in the cracks mineral ores have accumulated.

Whenever the land has been fully explored some mineral or other has been found, and in many places rich deposits of gold, silver, copper, or nickel are now being worked.

Sudbury, near the northern shore of Lake Huron, produces the bulk of the world's supply of nickel: **Kirkland Lake** and **Porcupine,** 120 miles farther north, are second only to the Rand of South Africa as gold-producing areas: and **Cobalt,** nearly midway between the two former towns, has produced large quantities of silver as well as cobalt.

Aeroplanes are proving of great use in the mining industry of the Canadian Shield. Skilled geologists, flying low over the country, first pick out those areas which are likely to yield precious metals; later, prospecting parties are landed in these regions, and kept supplied with food by aeroplanes; then when an area has been proved to be worth working, the aeroplane often comes in useful for transporting partially refined ore to the smelting-works. Some large machines which have recently been built for this work are capable of transporting 100 tons. Of course the ore has to be very valuable to pay for this method of transport; but in the case of radium, gold, silver, etc., it is often cheaper to take the concentrated ore by air to the smelter than to carry the machinery and fuel to the mine.

The world's chief deposit of uranium is situated near the eastern end of Great Bear Lake. Yellowknife, on the northern arm of Great Slave Lake, was the scene of a gold-rush by air in 1944–5.

EXERCISES

1. Find out from an encyclopaedia or history book, all you can about the Hudson's Bay Company.

2. From the following statistics draw squared-paper diagrams

showing the production of newsprint in a recent year. Name the countries on a map of the world.

Canada	4·9 million tons	Scandinavia	0·8 million tons
U.S.A.	0·8 „ „	Great Britain	0·3 „ „

3. Cut from newspapers and magazines, pictures and stories bearing on the life of the people mentioned in this chapter. Paste the cuttings on sheets of cardboard, and bring them to school for a class exhibition on a date fixed by your teacher.

4. About half the world's supply of cobalt comes from Canada, the rest from Belgian Congo and New Caledonia. Find these latter places on the map of the world. Consult an encyclopaedia and find out the uses of cobalt.

5. About 90% of the world's nickel comes from Canada. Most of it is mined at Sudbury, partially smelted near there, and then sent for further refining to Port Colborne, or West Virginia, or Swansea (Wales). Find these places on a map. Also find out the uses of nickel.

6. Important deposits of pitchblende (the ore from which radium is obtained) are worked near Great Bear Lake, and taken to Fort Hope in Ontario for refining.

Find these places on the map, and trace routes taken by the prospectors and by the concentrated ore sent southwards.

CHAPTER XIV

THE PRAIRIE LANDS

THE WONDERFUL STORY OF A GRAIN OF WHEAT

When colonists first settled on the prairies of Canada they could hardly manage to grow wheat at all. Some crops were ruined by frost, and others by a disease called 'rust,' so that farmers almost despaired of success. Then a wonderful thing happened. In 1842 a farmer called David Fife had sent to him from Glasgow some seed-wheat which had come from Poland. He sowed it, and anxiously watched it grow. But the crop was ruined by rust—all except three heads. But these three ripened heads of grain gave David Fife new hope. He saved them and sowed them next spring, and in autumn reaped a small harvest of ripened

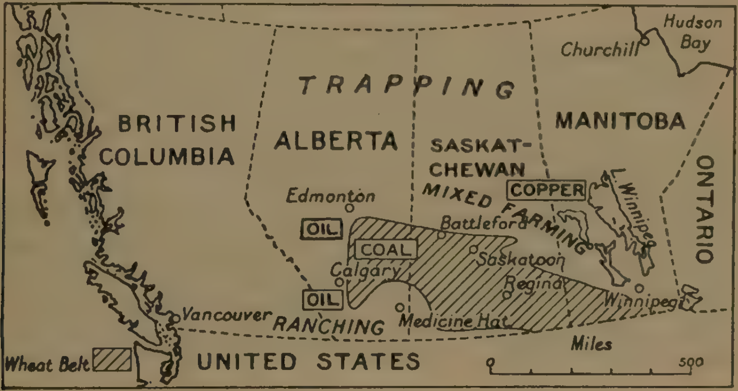
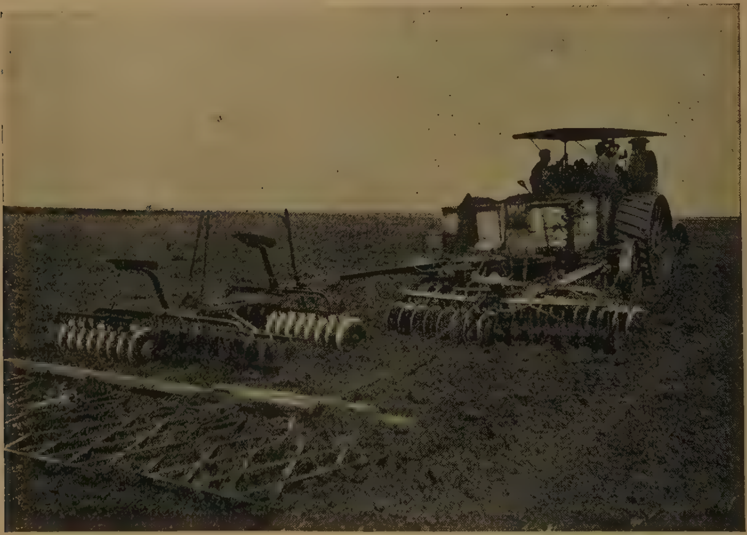


FIG. 98. THE WHEAT LANDS OF CANADA

grain. Year by year he threw back into the soil his precious handfuls of golden wheat; each time he was rewarded with success, and soon he had enough grain to distribute to other farmers. Thus was the prairie conquered by a stray grain of wheat and the observant care of a Scottish farmer. Quickly the golden tide of Red Fife wheat spread westward as settlers took up new lands in Manitoba, Saskatchewan, and Alberta. More than thirty years later a new variety—Marquis wheat—was introduced; but even this was descended from Red Fife, for it had been obtained by crossing that wheat with other types. The new wheat had one great advantage over the old—it ripened ten days earlier. In 1904 there was less than a pound of Marquis wheat in existence; in 1918 the crop was valued at over £120,000,000.

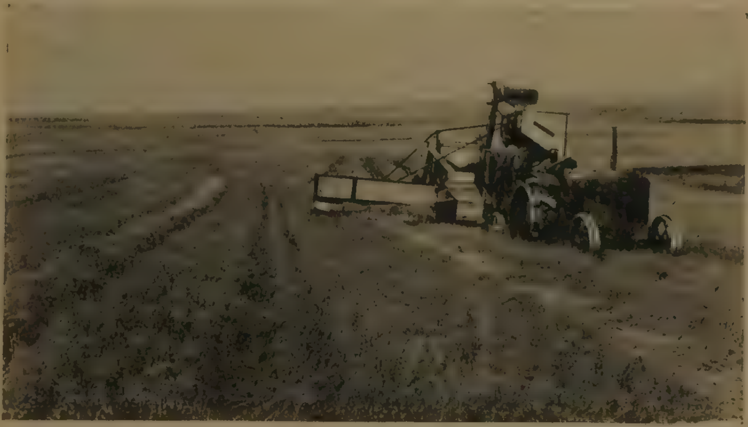


Natural Resources Intelligence Service

FIG. 99. DISKING AND HARROWING BY STEAM TRACTOR

HOW WHEAT IS GROWN ON THE PRAIRIES

If we were to visit a prairie farm we should find it very different from an English farm. We should be struck first by the size of the farm, and by the fact that it seems to have been laid out with a ruler. The land is divided into 'sections' a mile square, and these are subdivided into 'half sections' and 'quarter sections.' The favourite size for a farm is a half section, which is one mile long by half a mile broad, with a road on one or more sides.



High Commissioner for Canada

FIG. 100. 'COMBINE' HARVESTER AT WORK

Since the farms are so large, farming operations have to be done on a large scale; and as the winters are long and severe, nearly all the work has to be crowded into a few months. Seed is sown in April or May, as soon as the ground is free from snow. By the middle of August the grain is ripe and must be harvested before the first frost. As time is short and labour scarce, more and more of the prairie farmers are replacing their four- and eight-horse teams by power-driven combine harvesters, which reap and thresh the grain in a single operation.

On the smaller farms, where binders are still used, the sheaves are fed into the threshing machine, which separates the wheat from the straw and chaff. The farmer then carts the wheat to the nearest railway station, where it is weighed and stored into small elevators, to await the box cars in which it is transported to the ports.

FIG. 101. SUNFLOWERS, BRANDON

After the harvesting and threshing, the farmer hurries to plough the ground; but usually he does not get more than half of it done before the frosts set in. In winter there is not a great deal of work to be done on those farms which grow only grain; but the prairie farmer is learning that it is not wise to have all his eggs in one basket, or to have too much work in one part of the year and too little in another part. So many of them have taken up 'mixed' farming, dairying, and even market gardening.

HOW CANADIAN WHEAT IS SENT TO EUROPE

The biggest things on the landscape in the Prairie Provinces are the huge grain elevators, which are strung along the railways like gigantic beads on a string. Here the wheat is stored until it can be taken away in railway vans. There are several routes by which the wheat reaches the coast. As shown in fig. 104, these are:

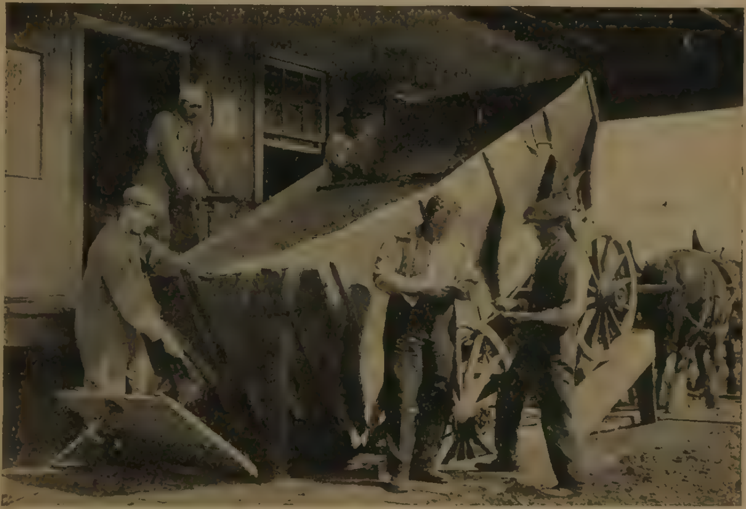
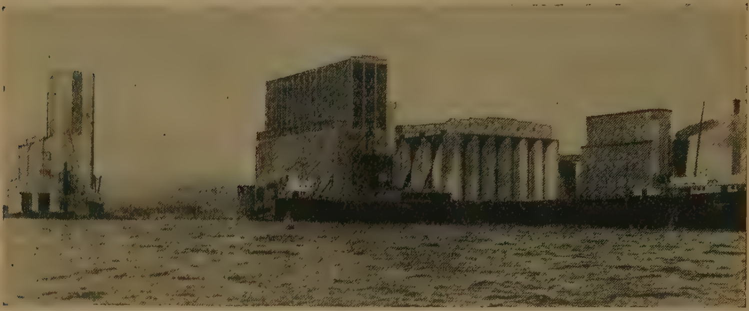


FIG. 102. FARMER DELIVERING WHEAT AT THE RAILWAY STATION

(1) Eastward through Winnipeg, which is the great wheat market of Canada. 'As each train arrives in Winnipeg she is boarded by a small party of samplers who press a hollow sample tube into each car at various points and

depths. These are quickly taken to the sampling houses, and the results communicated to the lake terminals before the arrival of the train.'[1] The lake terminals spoken of in this quotation are Fort William and Port Arthur, twin towns on Lake Superior. Here the wheat is sucked up into gigantic elevators and stored in huge bins. From these towns some of the wheat goes all the way by rail to Montreal, but most of it is shipped down the Great Lakes in specially constructed 'whale-back' steamers which convey it to Canadian or United States lake ports, and thence by rail to Montreal or New York, where it is again stored in gigantic elevators, to await shipment to Europe. Much of the wheat goes by large vessels through the Welland Canal to Kingston, and thence by rail and small steamers to Montreal. When projected canals are built (see p. 119) it will be possible for wheat to be carried in the same vessel all the way from Port Arthur to Liverpool. In winter wheat is exported via the ice-free ports of Halifax and Saint John.



Department of Interior

FIG. 103. WHEAT ELEVATORS AT PORT ARTHUR

(2) Through Vancouver, and then via the Panama Canal to Europe, or across the Pacific to China and Japan.

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[1] Jones and Bryan, *North America.*

(3) To Churchill, and thence via Hudson Bay. The railway to Churchill was completed in 1929, in order to give an alternative outlet for the Prairie Provinces.

The drawback to this route is that the sea is open only for three months; but the distance from the wheat land to England via Churchill is about 800 miles less than that via Montreal. In spite of the shorter sea-route, Churchill has not developed as quickly as it was hoped, though it has grain elevators for the storage of two million bushels.

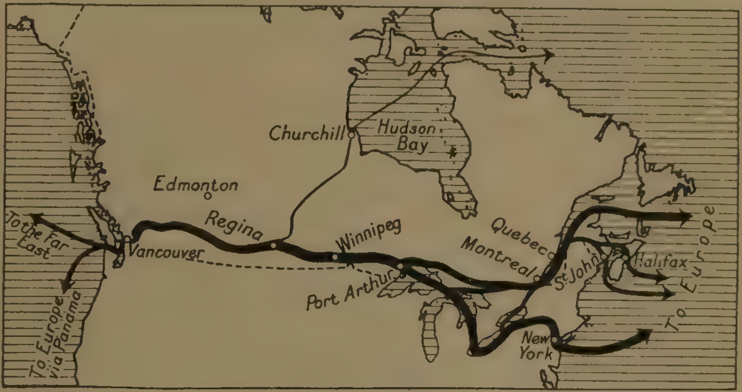

FIG. 104. ROUTES BY WHICH CANADIAN WHEAT IS EXPORTED

RANCHING ON THE PRAIRIES

Long ago the western prairies were great cattle lands, but when men found that the land was good for wheat, the cattlemen had to move to the poorer lands. Nowadays ranching is carried on only in districts such as southern Alberta, where the climate is too dry for growing wheat. Here the country is quite open, and there are no fences.

The cattle are collected and branded in spring and then allowed to wander at will until autumn, when they are chosen for market.

Only sufficient are kept over the winter to ensure the next year's supply. The rounding-up used to be done by cowboys, but the motor car is now used instead.[1]

COAL, OIL, AND GAS

In a generation Alberta has changed from a wild ranching country into a fruitful wheat land. It may be that another and even greater change lies before it in the immediate future, for under the ground are vast stores of coal, petroleum, and natural gas. Though only about 5,000,000 tons of coal are now produced each year in the province, it is said that the coal-field contains 14% of the world's coal. A good deal of it is of the brown variety known as lignite, but there are also vast seams of high-grade coal. It is quite probable that in the near future great manufacturing towns will grow up on this coal-field.

Mineral oil, or petroleum, is obtained from a large new oil-field near Edmonton, and sent by pipe-line to the Great Lakes and Vancouver. Natural gas is also obtained from bores in southern Alberta. It is used in several towns for lighting the streets and houses, and is so plentiful that in Medicine Hat the street lamps are left burning all day. It is cheaper to let the gas burn than employ a man to turn off the taps!

THE TOWNS OF THE PRAIRIE PROVINCES

Winnipeg. A hundred years ago there was only a Hudson's Bay Company's trading post where Winnipeg now stands. To-day it is the fourth city in Canada, with over 200,000 inhabitants.

There are good reasons why Winnipeg has grown so fast. It is situated near the centre of the Red River Basin, which

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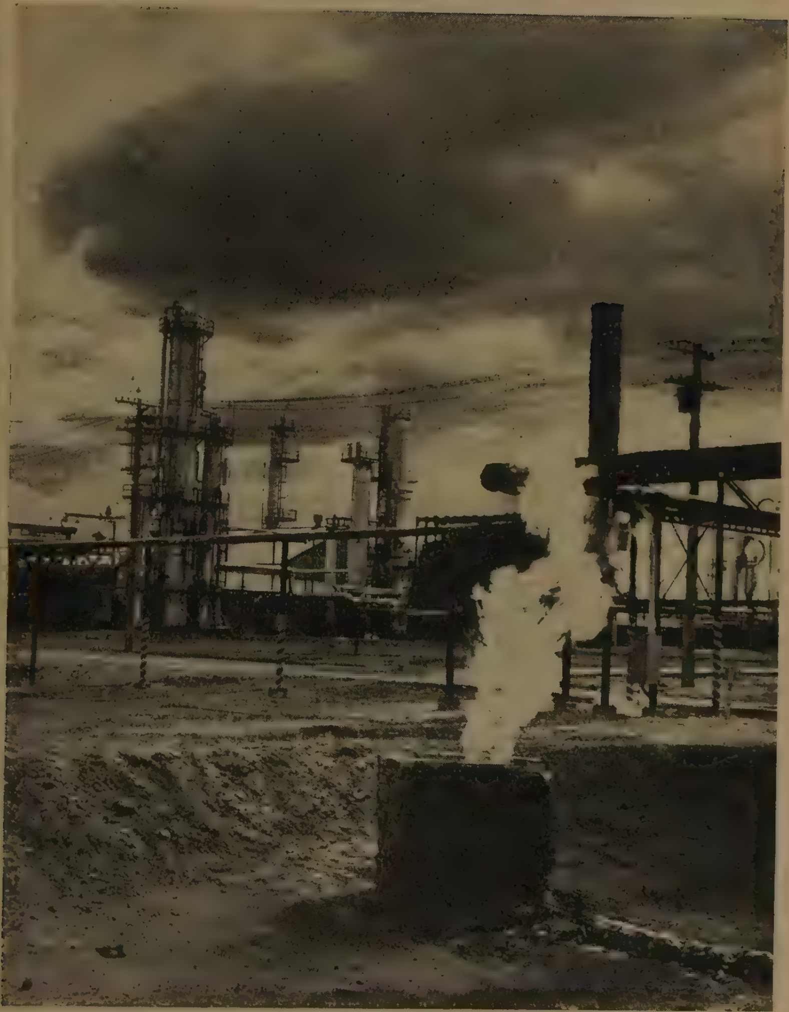
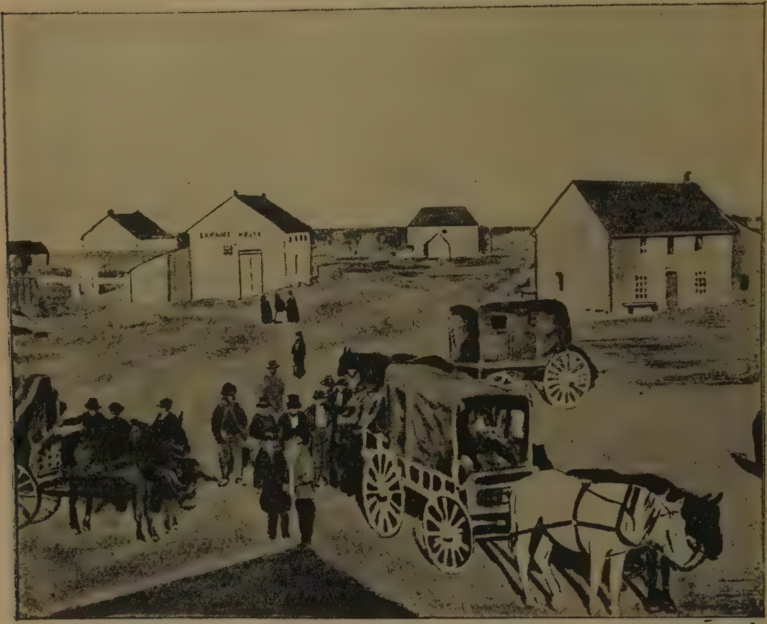
[1] Sir E. J. Russell.



Fox Photos

FIG. 105. EDMONTON OIL-FIELD: DISTILLATION UNIT

is the most fertile farming district of Canada. Also, it commands the gateway from eastern Canada to the Prairies. Any Canadian road or railway from east to west was bound to pass between Lake Winnipeg and the United States border. Now the routes spread out from Winnipeg in all directions, like the ribs of a fan (see fig. 108).

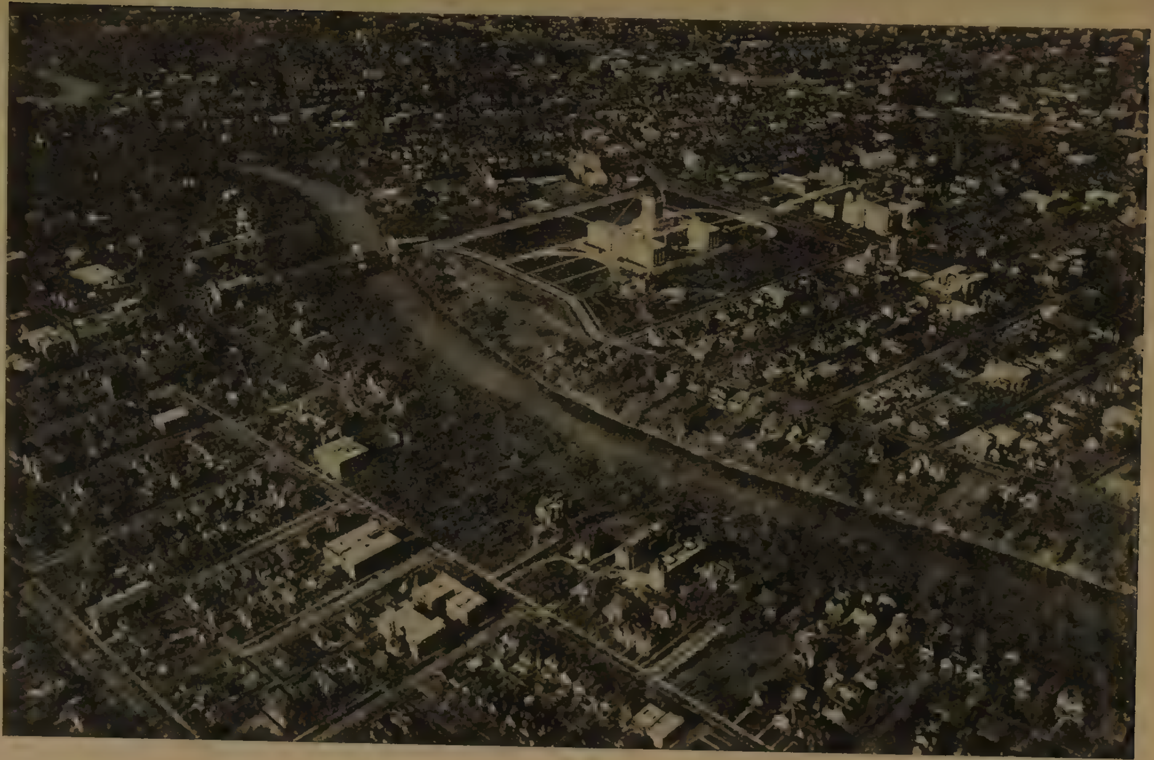


Public Archives of Canada

FIG. 106. WINNIPEG IN 1872

Winnipeg is the great wheat market of Canada. Every grain of wheat which is sent from the Prairies eastward to Montreal or New York passes through Winnipeg, so it has become the great grading and merchanting centre. It has also many important industries such as flour-milling and the manufacture of agricultural implements.

Regina, sometimes called 'the Queen of the Prairies,' is



Canadian Air Board

FIG. 107. WINNIPEG FROM THE AIR

the capital of the province of Saskatchewan, which nowadays grows five times as much wheat as Manitoba.

Saskatoon is the chief railway centre of the northern prairies, and is famous for its university.

Calgary, which commands the route to the Kicking Horse Pass, is the chief market town in the ranching country, and is, therefore, specially noted for its great stockyards, where cattle and sheep are sold. Near by are large supplies of coal, oil, and natural gas, which are attracting many industries. How rapidly the town has grown may be judged from a comparison of figures 109 and 110.

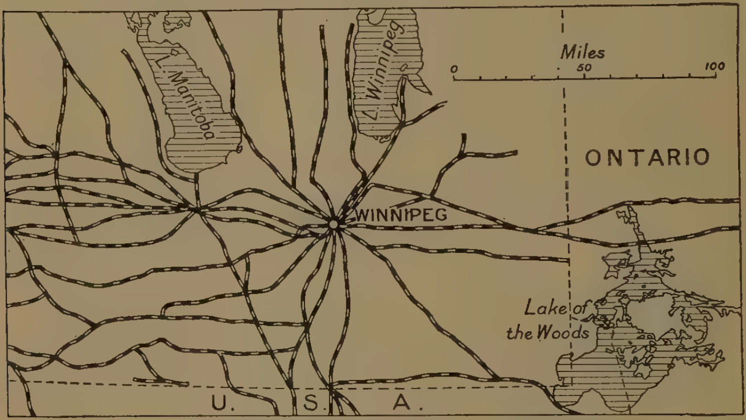


FIG. 108. WINNIPEG AS A RAILWAY CENTRE

Edmonton, the capital of Alberta, is the centre of a fertile mixed-farming district, and has grown rapidly in recent years with the development of the oil-field mentioned on page 144.

It commands the route across the Rockies via the Yellowhead Pass, and is the gateway to the newly developed 'Peace River Country' which lies three hundred miles farther north. Not so very long ago this district was thought to be almost useless for farming; but the experience of settlers

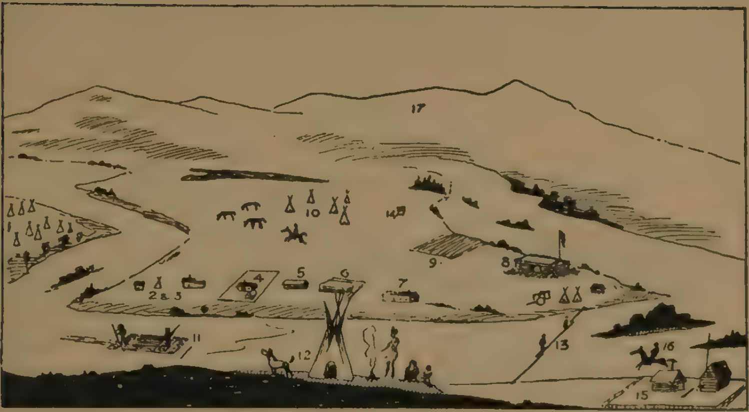
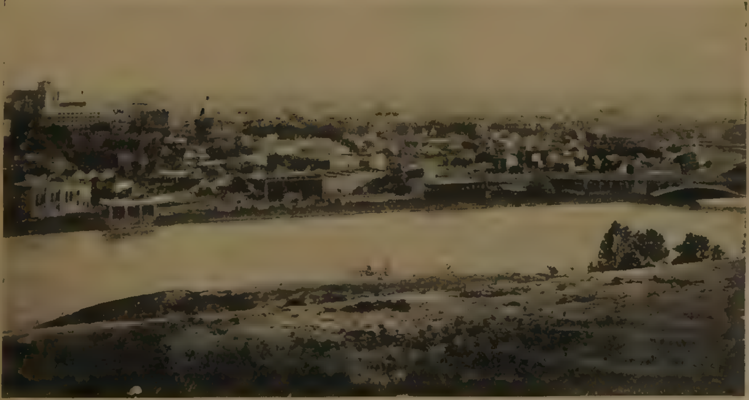


FIG. 109. THE SITE OF CALGARY

After a drawing made by an Indian in 1877.

1. Indian camp
2 and 3. Roman Catholic mission
4. Interpreter's house
5, 6, and 7. Trading posts
8. Government post
9. Garden
10. Indian camp
11. Raft
12. Indian camp
13. Bridge
14. Wesleyan mission
15. Hudson's Bay Company
16. Indian fording the river
17. The Rocky Mountains



Courtesy of Mr C. A. Matthews

FIG. 110. CALGARY TO-DAY

has shown that it is excellent grain land. Indeed, for several years in succession a Peace River farmer won the world's championship for wheat and oats.

EXERCISES

1. The following figures show in millions of cwts. the sources of the British imports of wheat in a recent year.

Canada	Australia	U.S.A.	Argentina
66	15	7	7

At appropriate places on a map of the world draw 'grain elevators,' proportional in size to the wheat shipped from the various countries.

2. Draw a graph to show the growth of Canada's exports of wheat and flour, according to the following figures (quantities in millions of bushels):

1900	'05	'10	'15	'20	'25	'30	'35	'40	'45	'50
20	20	63	94	117	241	212	254	208	340	225

3. Draw a map of the Prairie Provinces of Canada, and mark in the wheat belt (see fig. 98). Within this wheat belt put in each province one dot for every 10 million bushels of wheat produced: Manitoba 57 million bushels, Saskatchewan 435 million bushels, Alberta 150 million bushels .

4. From your atlas find out how far it is from Vancouver to Liverpool via the Panama Canal, from Winnipeg to Liverpool, and from Churchill to Liverpool.

Cut from the newspapers any references to Vancouver and Churchill as ports.

CHAPTER XV

THE ROCKY MOUNTAIN REGION

When we look at British Columbia on an atlas map it seems just a maze of mountains, rivers, and lakes, but the sketch-map (fig. 111) shows the following features:

(1) **The Coast Range,** which is a 'half-drowned' range, the higher parts forming islands, such as Vancouver Island, and Queen Charlotte Island.

(2) **The Cascade Range,** which is sometimes called the Coast Range, since it runs close to the coast of the mainland.

(3) **The British Columbian Plateau,** which is cut by deep gorges, such as the Fraser Canyon.

(4) **The Gold Ranges,** comprising the Selkirk Range, the Cariboo Range, and others.

(5) **The Rocky Mountain Trench,** a deep valley occupied by parts of the Fraser, Columbia, and Kootenay Rivers.

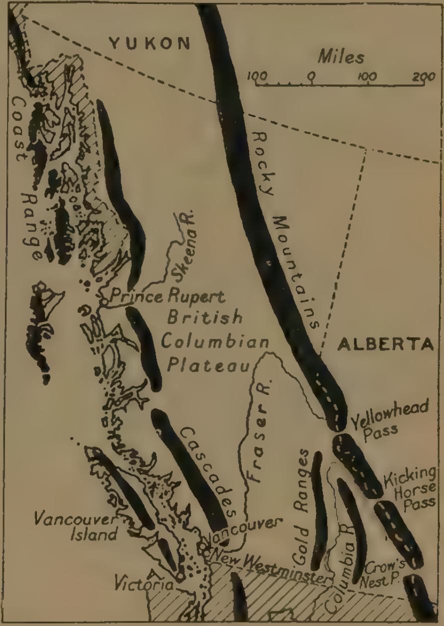


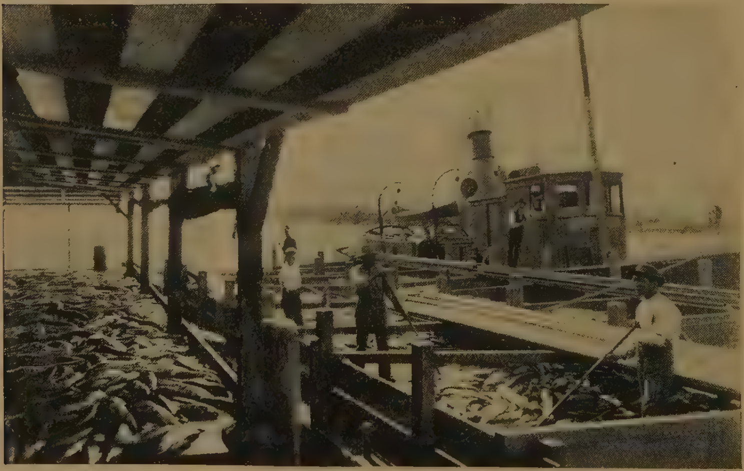
FIG. 111. SKETCH-MAP OF BRITISH COLUMBIA

(6) **The Rocky Mountains,** which are cut by four passes: Crow's Nest, Kicking Horse, Yellowhead, and Peace River.

Though British Columbia is three times as big as the British Isles, it contains only about half a million people.

LIFE AND WORK IN BRITISH COLUMBIA

(1) **SALMON FISHING.** The 'sock-eye' salmon (so called from an Indian word which means 'the best fish') is the one most prized for canning purposes. The young salmon hatch out in the lakes high up in the mountains of British Columbia. There they spend the first year of their lives, after which they swim down the rivers to the sea. When they are four years old they return to their birthplace to spawn. Drawn on by some compelling instinct they swim upstream, battling against surging torrents, and even leaping small waterfalls, until at last they reach the lake in which they were hatched.

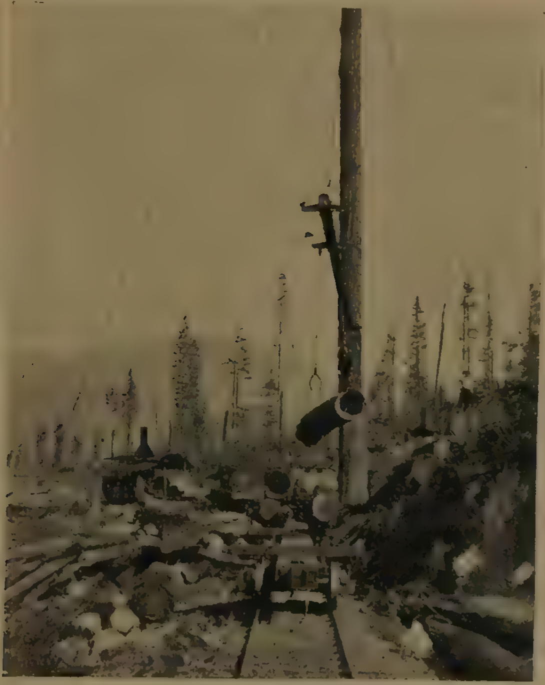


C.P.R.

FIG 112. UNLOADING SALMON AT A NEW WESTMINSTER CANNERY

There, after spawning, the sock-eye salmon die, though other varieties return to the sea.

The salmon are caught in the straits and gulfs and rivers in summer time, when they are on their journeys to the spawning grounds. All manner of contrivances are used—nets, baited hooks, basket-work traps, and even water-wheels which throw the fish out of the water into boats. The canneries are usually built on piles on the shores of sheltered inlets. Here the fish are raised from the boats on to a moving belt which conveys them to the cleaning



Canadian Department of Interior

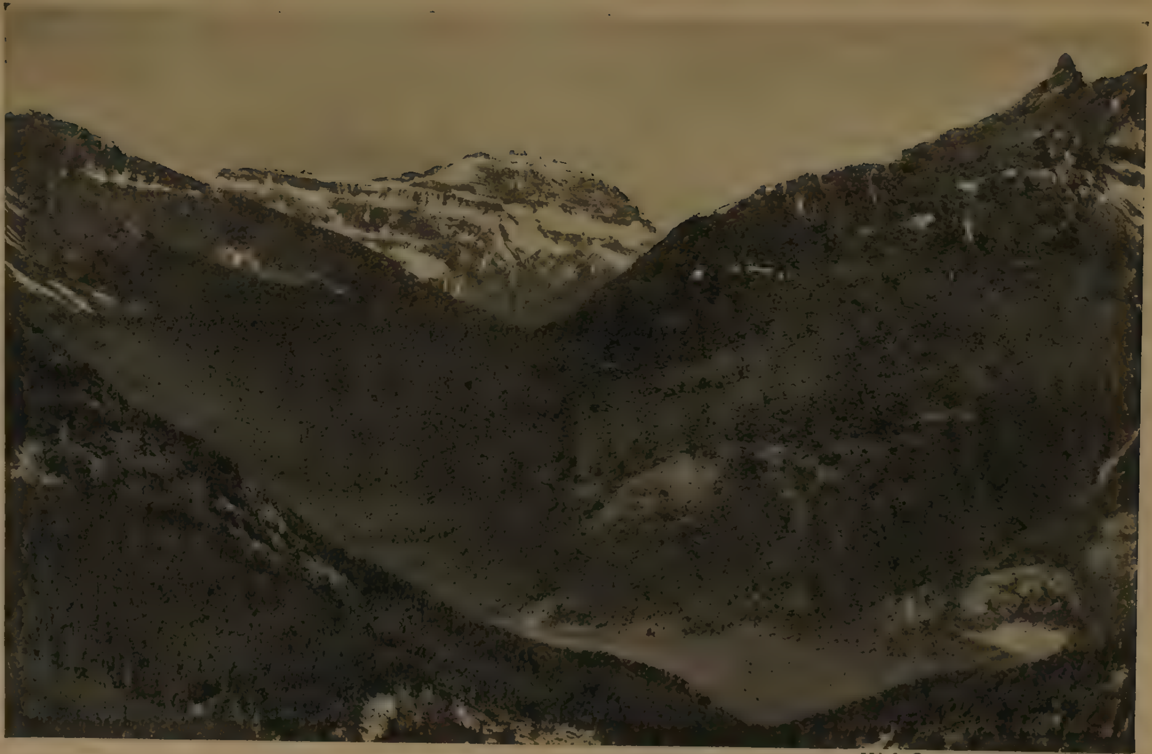
FIG. 113. 'FLYING MACHINE' HAULING A LOG and cutting machine. Formerly most of the work in the canneries was done by Chinamen, so this machine, which does the work of two or three score men, is known as the 'Iron Chink.' It cuts off heads, tails, and fins, and cleans and washes the fish at the rate of one a second! On leaving the 'Iron Chink' the fish are sliced, canned, and cooked, without being touched by human hand.

(2) **LUMBERING.** The mountains of British Columbia are clothed almost to their summits with fine coniferous trees, such as the Douglas fir and the red cedar. Lumbering is not carried on in the same way as in eastern Canada, mainly because there are few snow-ways over which to drag the logs, and few rivers which flow slowly enough to enable logs to be floated down them. Consequently, most of the timber is hauled overland. One interesting device is known as the 'flying machine.' To make it the branches are cut off two very tall trees which stand close together, pulleys are fixed to the tops of the standing trunks, and wires passed through them. By this device and the aid of donkey engines, twenty-ton logs can be slung into the air like match-sticks, and so transported to the logging railway, which takes them to the saw-mill.

Another interesting method of transporting is by means of the *flume*—a watertight trough down which the logs are floated one at a time.

Most of the timber of British Columbia is exported as such, instead of being turned into wood-pulp, as is done in eastern Canada. Australia, China, and Japan are good customers for British Columbia's timber, and large quantities are also sent through the Panama Canal to eastern United States, eastern Canada, and Britain.

(3) **MINING.** It was the lure of gold which first drew white settlers to British Columbia. A few years after the Californian gold-rush of 1849, news spread that gold had been found in the Cariboo Mountains. Prospectors poured into



High Commissioner for Canada

FIG. 114. A VIEW IN THE ROCKIES

the country in thousands, facing terrible hardships to reach the Cariboo, or to make 'lucky strikes' on their own. A few were rewarded with great success, and millions of pounds' worth of gold were won from the sand and gravel of the river beds.

Though little gold is now obtained from the Cariboo district, several new fields have been opened up, and British Columbia is still one of the notable gold-producing districts of the world. But the days of the lone prospector, with his pack and pick and pan, are almost over. Most of the gold is now obtained from veins in the solid rock. For this expensive work costly machinery is required, so almost all the mining is conducted by wealthy companies.

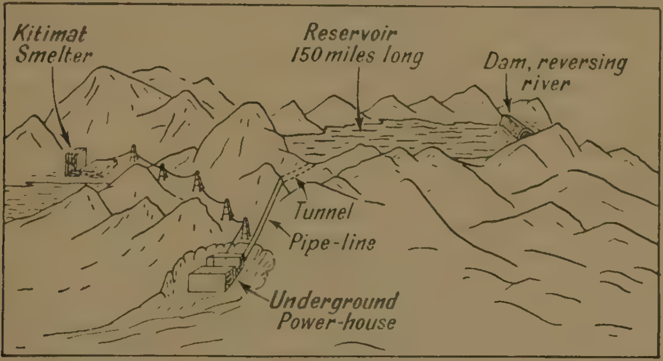
Many other metals besides gold are mined in British Columbia; indeed, the output of 'base' metals such as lead, zinc, and copper is greater in value than that of gold. The chief smelting centre is **Trail**, near the United States boundary. British Columbia is also fortunate in possessing deposits of coal, the chief coal-mining districts being near **Crow's Nest Pass** and at **Nanaimo**, on Vancouver Island.

(4) **FARMING.** The mild climate of British Columbia makes it very suitable for fruit-growing. The Okanagan Valley is specially famed for its apples and pears, and the Fraser Valley for its strawberries and other 'small fruits.'

As British Columbia is in the track of the westerly winds which blow from the Pacific Ocean, we should expect its climate to be at least as wet as our own. So it is—near the coast and on the mountains. But the deep valleys of the interior are so sheltered from the rain-bearing winds that they are quite arid. Indeed, many of the best fruit farms have been made from land which was originally almost desert. The secret is, of course, irrigation. The heavy rain and the melting snows on the mountains feed numerous streams, and these have been tapped to provide water for the thirsty land.

(5) **HYDRO-ELECTRICITY.** From the point of view of benefits to man the mountains of British Columbia seem to give with one hand and take away with the other. The fiord coast provides innumerable deep, sheltered harbours, but these are nearly all inaccessible from the interior; the rapid streams offer an inexhaustible source of power, but the greatest falls are situated far inland in uninhabitable regions.

In order to make Nature give with both hands engineers decided to transfer a waterfall to a fiord. A great dam was built across the upper valley of one of the eastward-flowing tributaries of the Fraser, creating a lake 150 miles long (see fig. 115). From the upper end of this lake a ten-mile tunnel was bored through the mountains and at its exit pipe-lines were built to underground generators on the fiord below, giving a fall of water sixteen times the height of Niagara. From this generating station cables now carry electricity over the mountains to the more navigable fiord at Kitimat, where it is used to smelt aluminium ore brought direct from Jamaica. When fully operating the smelters will produce a quarter of the world's present supply of aluminium.



C.P.R.

FIG. 115. KITIMAT HYDRO-ELECTRIC SCHEME

THE CITIES OF BRITISH COLUMBIA

Vancouver is the great port of western Canada, and the terminus of the Canadian National and Canadian Pacific Railways. It is situated, not at the mouth of the Fraser, as it seems to be on a small atlas map, but some distance farther north on a deep, sheltered inlet.

Though it is much farther north than Montreal and Quebec, it is never closed by ice as are the ports of the St Lawrence. The reason is that, whereas in eastern Canada the winter winds blow from the cold interior, in British Columbia they blow from the warm Pacific Ocean.

Vancouver exports not only the timber, fish, metals, and fruit of British Columbia, but also, as we have learnt, large quantities of wheat from the prairies. A recently constructed pipe-line brings oil from the Alberta oil-field (see page 144).

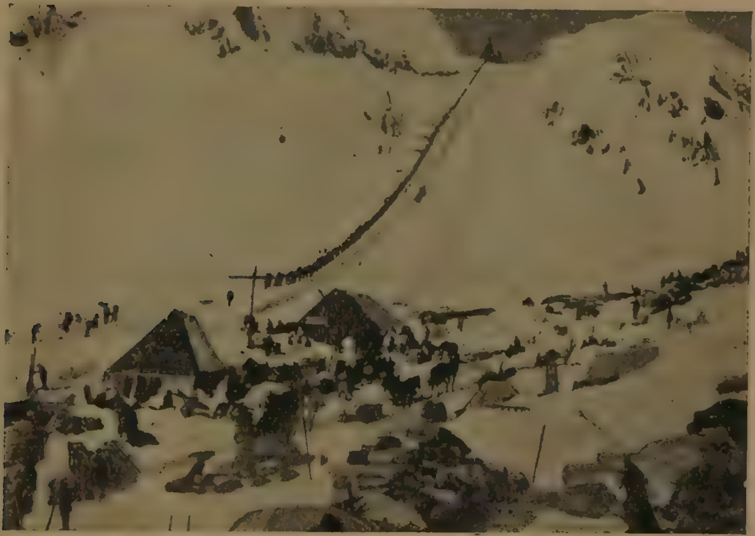
Prince Rupert, situated five hundred miles farther north, at the mouth of the Skeena River, is also an ice-free port. It is the terminus of a branch of the Canadian National Railway which leaves the main line at Yellowhead Pass.

Victoria, on Vancouver Island, is the capital of British Columbia. It is a pleasant, English-looking city, with many gardens and public parks.

New Westminster, at the mouth of the Fraser, is the chief salmon-canning centre.

YUKON TERRITORY

Yukon Territory is noteworthy chiefly for the Klondike gold-rush of 1898. The principal route to Klondike led, then as now, from Seward through Skagway and over White Pass. Over this pass not only 'old-timers,' but also twenty or thirty thousand 'greenhorns' from factory, farm, and office, in Europe and the United States, struggled with their clothing, food, and equipment. On this terrible trail hundreds perished of cold and exhaustion, and of the survivors many lost their lives in attempts to shoot the perilous White Horse Rapids, eighty miles farther north.



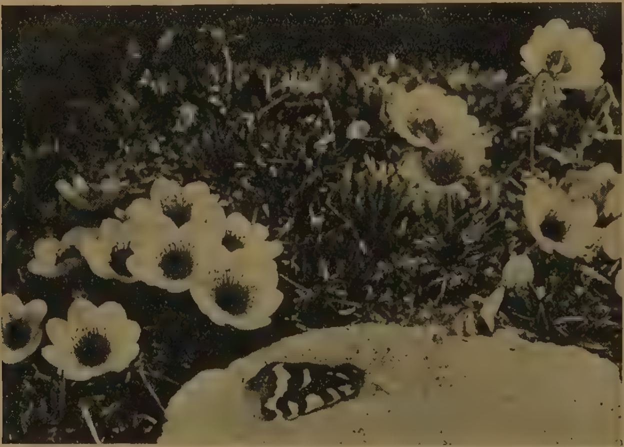
High Commissioner for Canada

FIG. 116. THE CHILCOOT PASS IN 1898

In 1898 a railway, which is still in operation, was built through the White Pass, and so the perils of the journey to Klondike were minimized.

Of those who reached the gold-fields, a few made 'lucky strikes' and won riches beyond their wildest dreams; 'but it was not every poor fellow who could make a "grub stake," that is, enough to live on, always in the hope of a "home stake," which would enable him to return rich, to "go outside," as was the expression suggested by the imprisoning isolation of this eagerly sought valley.'[1] At the height of its prosperity, in 1900, the Klondike produced over five million pounds' worth of gold, while Dawson City, the mining capital, had a population of 27,000.

Even now, though the population of the 'city' is only about 1,000, nearly a million pounds' worth of gold is obtained from the Yukon region every year. But practically all the mining is done by rich companies, who operate powerful dredges and expensive machinery.



Geological Survey, Canada

FIG. 117. FLOWERS AND A MOTH FROM THE BORDERS OF THE ARCTIC OCEAN

ALASKA

The peninsula of Alaska is a territory of the United States which is governed from Washington. The government of the United States bought the 'territory' from Russia in 1867 for £1,500,000. The people of the U.S.A. thought for a long time that they had made a bad bargain; but gold was discovered there in 1898, and the total value of gold and other minerals exported from Alaska since then is equal to a hundred times the price paid for the land.

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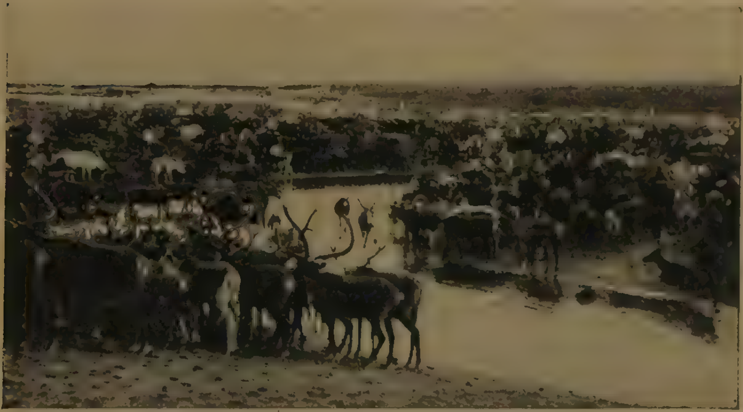
[1] A. R. Hope Moncrieff.

Gold is still mined in the Yukon Valley and near Nome, and some quantity of copper is also exported. The chief industry, however, is salmon fishing and canning, and the export of salmon each year is nearly equal in value to the price paid for the land.



Topical Press

FIG. 118. A REINDEER FARM IN ALASKA

It was at one time expected that Alaska would produce large quantities of venison for export. Some fifty years ago about a thousand reindeer were imported from Siberia, and within thirty years their descendants numbered over half a million. Unfortunately the slow-growing arctic moss, which is their winter food, could not keep pace with their appetite, and the reindeer herds now number only about 25,000.

Alaskan routes. Formerly one of the world's remote outposts, Alaska is now becoming one of the key-points in world communications. The shortest air-routes between

New York and Tokio, between San Francisco and Europe, and between the United States and Siberia pass over Alaska. In consequence, air stations and air-bases have been established at Fairbanks, Nome, and other places in the Alaskan Peninsula.

Fairbanks, the chief town of northern Alaska, is linked by rail to the port of Seward, and by the Alaska Highway to the Canadian prairies.

Juneau, the capital of Alaska, is situated on the fiord known as the Lynn Canal. From the head of the fiord road and rail lead over the Whitehorse Pass to the Alaska Highway.

EXERCISES

1. Compare British Columbia with the Maritime Provinces, dealing with the following points: Lumbering, mining, fruit-growing, fishing.

2. Though Vancouver is about 350 miles farther north than Halifax (Nova Scotia), its winter temperature is about 16° F. warmer.

The reasons are:

(*a*) On the west coast of Canada the prevailing winds come from the sea, and are, therefore, mild in winter, whereas on the east coast the prevailing winds come from the cold interior of the continent.

(*b*) The warm Pacific Drift washes the west coast, while the cold Labrador Current washes the east coast.

(*c*) The Rockies shelter Vancouver from any cold winds from the interior, whereas the eastern mountains are not so high, and do not form so effective a barrier.

Show the above facts on a sketch-map of Canada.

3. Say how Vancouver has profited by the building of the Panama Canal.

4. Make notes of any stories you may come across concerning: (*a*) The Klondike gold rush; (*b*) Early pioneers in British Columbia; (*c*) Adventures in the Canadian Rockies. Be prepared to tell the stories to the class.

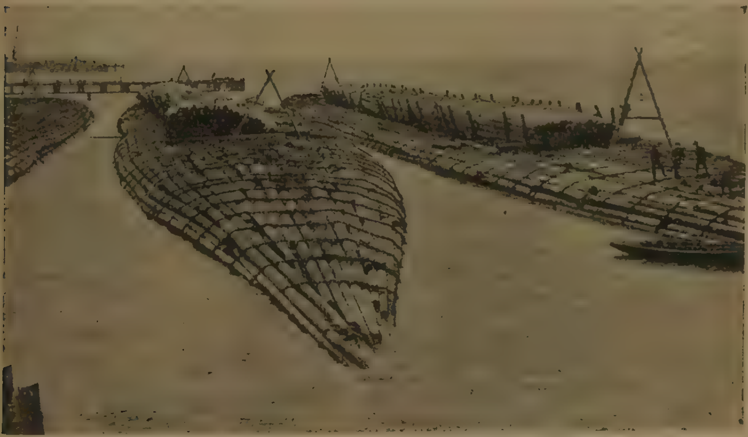
CHAPTER XVI

THE UNITED STATES

THE MOUNTAIN STATES OF THE WEST

(1) THE COASTAL STATES

All the western third of the United States is occupied by ranges of the Rocky Mountain System. The atlas shows that the Coast Range and the Sierra Nevada enclose between them two long valleys. The more northerly one, in the states of Oregon and Washington, opens out northward to Puget Sound, where lies the port of **Seattle**, and westward to the mouth of the Columbia River, where the city of **Portland** is situated. This valley is specially noted



Portland Chamber of Commerce

FIG. 119. A RAFT OF LOGS IN THE WESTERN UNITED STATES

for the cultivation of apples and pears. The mountain sides are clothed with forests from which the famous Oregon pine is obtained.

The second valley occupies the greater part of the State of

CALIFORNIA

This state is shaped like a trough, the bottom of which is the Californian Valley, the high eastern edge the Sierra Nevada, and the lower western edge the Coast Range.

FRUIT-GROWING. California, like Middle Chile, lies in about the same latitude as the Mediterranean districts of Europe, and has roughly the same kind of climate—warm, moist winters, and hot, dry summers.

Like all Mediterranean lands it is a great fruit-growing region. Indeed, no other district of similar size grows as much fruit as California. All who take the trouble to read the labels on the packets, tins, and boxes which come into their homes, will know that California sends us large quantities of oranges, prunes, raisins, tinned peaches, apricots, and so on.

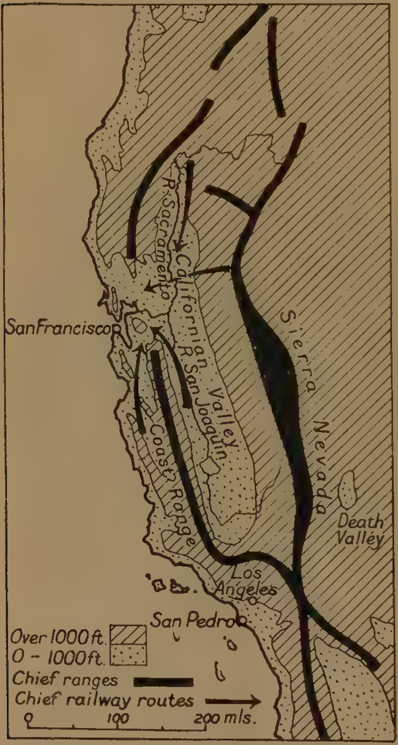
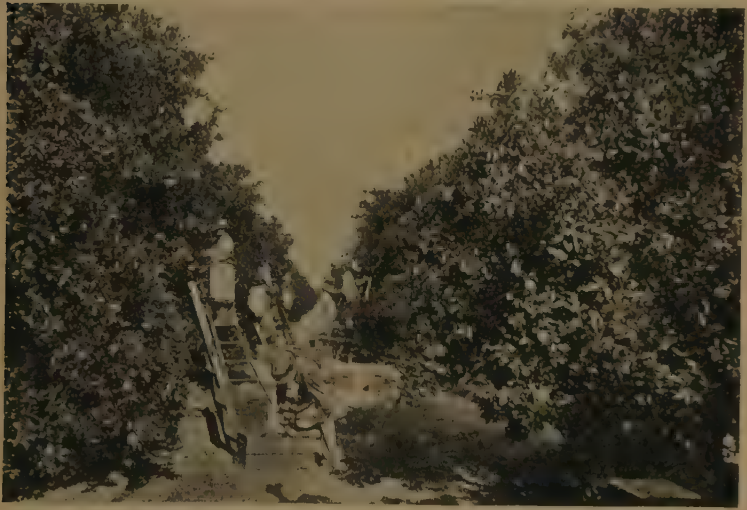


FIG. 120. SKETCH-MAP OF CALIFORNIA

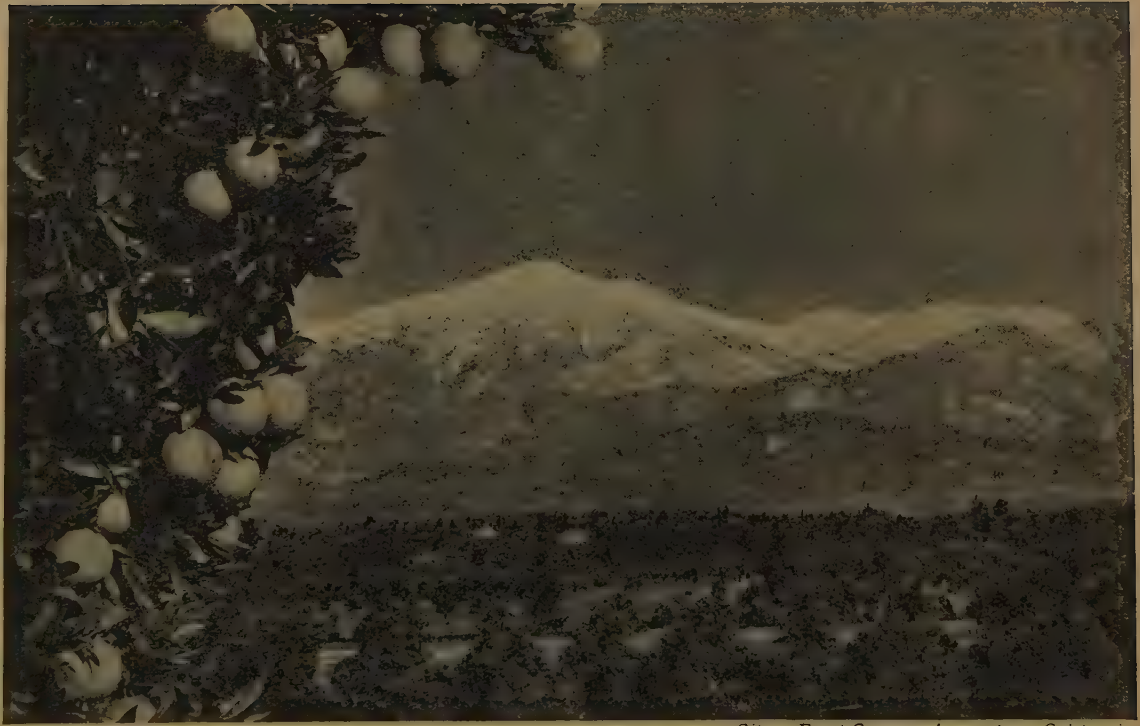
Two great difficulties which the Californian fruit farmer has to face are lack of water in summer, and danger of frost in winter. The lack of water is made good by irrigation. The streams which flow from the Sierra Nevada and the Coast Range are dammed up, and the water from the reservoirs is led over the land during the hot, dry summer. Frosts are never very severe on the lowlands of California, but even when the temperature drops only a few degrees below freezing point, great damage may be done to the fruit-trees. The fruit farmers, therefore, take great precautions against such occasional frosts. Sometimes they make fires of straw and damp leaves, the smoke from which acts as a kind of blanket and warms the air around the fruit-trees; in other cases, stoves are set between the lines of trees, and kept burning on nights when frost is feared.



Dorien Leigh

FIG. 121. PICKING ORANGES, CALIFORNIA

California is also one of the leading states for **cotton**, which is grown on irrigated land in the south.



Citrus Fruit-Growers Association, California

FIG. 122. ORANGE GROVES AND SNOW-CAPPED MOUNTAINS IN CALIFORNIA

LUMBERING is an important industry, the slopes of both the Coast Range and the Sierra Nevada being clothed with valuable coniferous forests. The most remarkable trees in the world, the giant *sequoias*, grow in this region. They grow to a height of 250 to 300 feet, and some of them are known to be more than 4,000 years old. In addition to these, there are the giant Red Wood trees of the Pacific Coast, and the Silver Pine of the Sierra Nevada.

MINING also provides work for many people. In California, as in British Columbia, Alaska, and Australia, it was **gold** which first attracted white men in large numbers. The Californian gold-rush took place in 1849, and those who took part in it were known as 'forty-niners' (see the first verse of the song 'Clementine'). Gold is still obtained from the mountains of northern California, but as in Alaska and British Columbia the industry is now almost entirely in the hands of large companies.

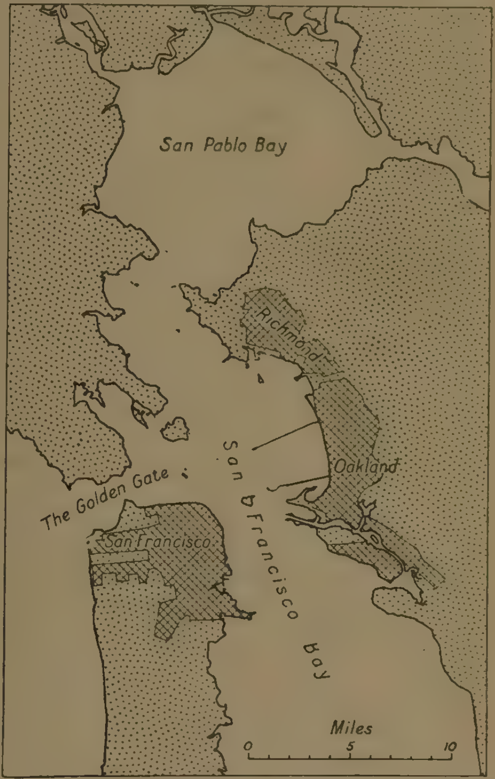


FIG. 123. SAN FRANCISCO AND THE GOLDEN GATE

Petroleum is now by far the most important mineral of California. The oil-fields which are situated in the extreme south, near the city of **Los Angeles**, produce nearly one-tenth of the world's supply.

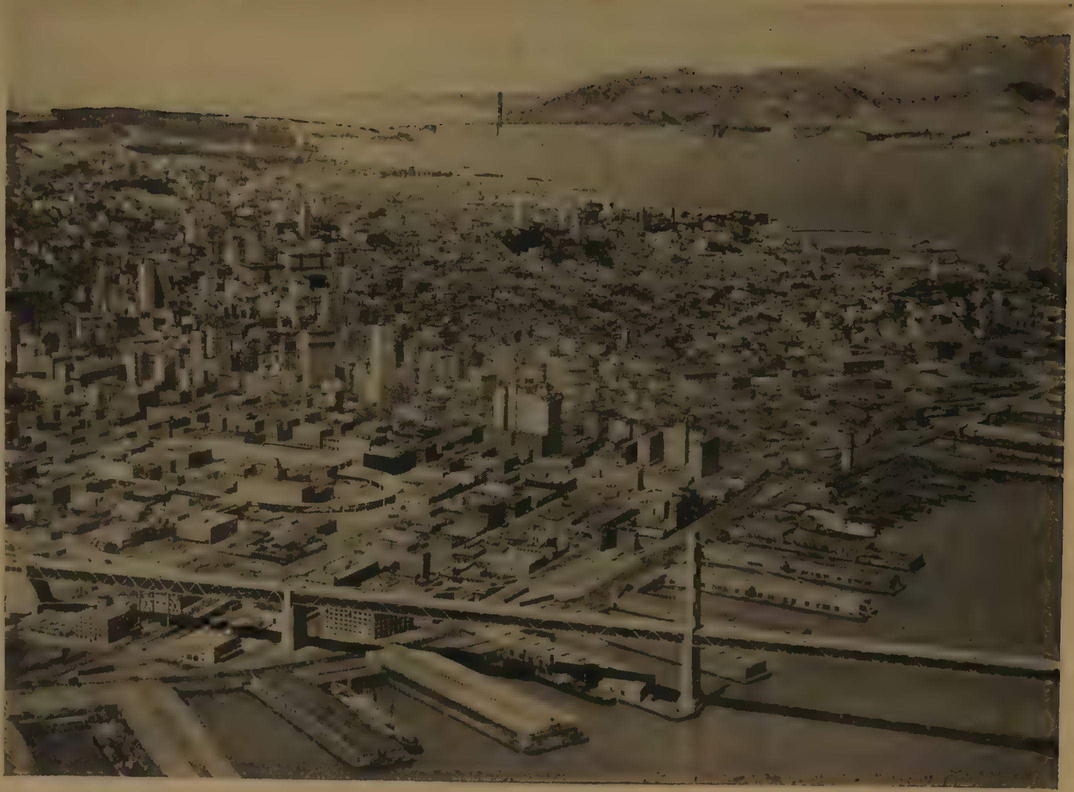
THE GREAT CITIES. The capital of California is **San Francisco**, situated on the Golden Gate, a magnificent harbour formed by a break in the Coast Range. Immediately opposite the city, in the Sierra Nevada, is the pass through which led the first 'trail' to the Pacific Coast, and through which the first trans-continental railway of North America was constructed. Though San Francisco is the chief port of the west coast of America, it is not now the largest city. **Los Angeles**, four hundred miles farther south, has now a larger population. Everyone knows that the Hollywood suburb of Los Angeles is the world's chief film-making centre; but comparatively few of the two million people who live in the city are engaged in this industry. Most of them get their living by working in factories whose machinery is run by oil or hydro-electricity. The chief industry is the manufacture of aircraft.

Los Angeles is situated several miles from the sea coast, and until quite recently had no deep-water harbour near. But an artificial harbour, with forty miles of water-front, has been constructed at **San Pedro**, which is now one of the chief ports of the U.S.A.

(2) THE HIGH PLATEAUS

Between the Sierra Nevada and the Rockies is a series of plateaus, the chief of which are the Great Basin and the Colorado Plateau. These plateaus are so sheltered from rain-bearing winds that they are almost entirely desert.

In the **GREAT BASIN** the rivers which flow down the mountain sides lose themselves in the sand, or flow into salt lakes. Great Salt Lake is said to contain four hundred



Ewing Galloway, N.Y.

FIG. 124. THE GOLDEN GATE, SAN FRANCISCO: GOLDEN GATE BRIDGE IN THE DISTANCE

million tons of salt, and its waters are so salt that even non-swimmers can float in it.

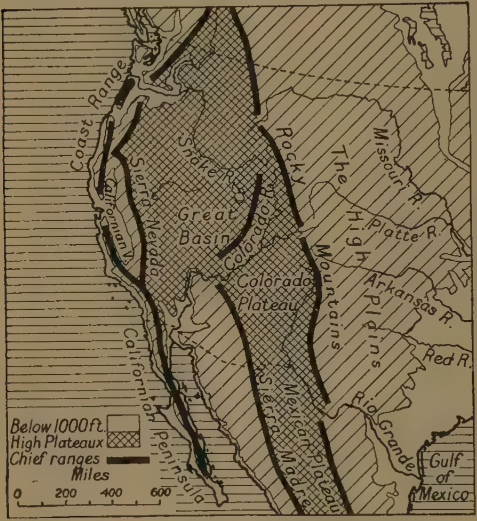


FIG. 125. WESTERN U.S.A.—PHYSICAL

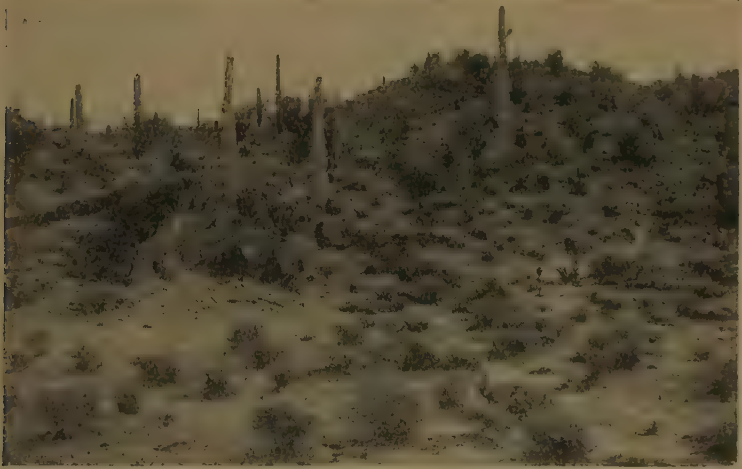
Though the Great Basin gets only five to ten inches of rain a year, it is not entirely barren. 'Bunch' grass—so called because it grows in scattered bunches — provides food for cattle and sheep. The stock-farms are, of course, very large, since each cow requires, on the average, about thirty acres of such poor grazing land.

The soil of the Great Basin is very fertile, when it can be well watered. In many districts great reservoirs have been constructed in the mountains, to supply water to the valleys and plains.

The first part of this region to be irrigated was the land round **Salt Lake City**, which was developed by the Mormons.

THE COLORADO PLATEAU is even drier than the Great Basin; but it is crossed by a great river, the Colorado. Ages ago this river flowed on the surface of the plateau, but it has now cut down its bed so deeply that the bottom of the canyon is six or seven thousand feet below the general level of the plateau. Its sides are so steep that in places one may see straight down for nearly a mile. The steepness of the sides of the canyon is due partly to the hardness of the rock, and partly to the lack of rain. Had the rock been soft, or the climate wet, the sides would have fallen in as fast as the river cut downards, so making a wide valley.

It is, of course, quite impossible to irrigate the plateau from the Colorado River; but there is a large area near the mouth of the river which irrigation has transformed from absolute desert into rich cotton- and fruit-growing land.



Prof. T. D. MacDougal, Director, Carnegie Desert Laboratory

FIG. 126. DESERT SCENE IN ARIZONA

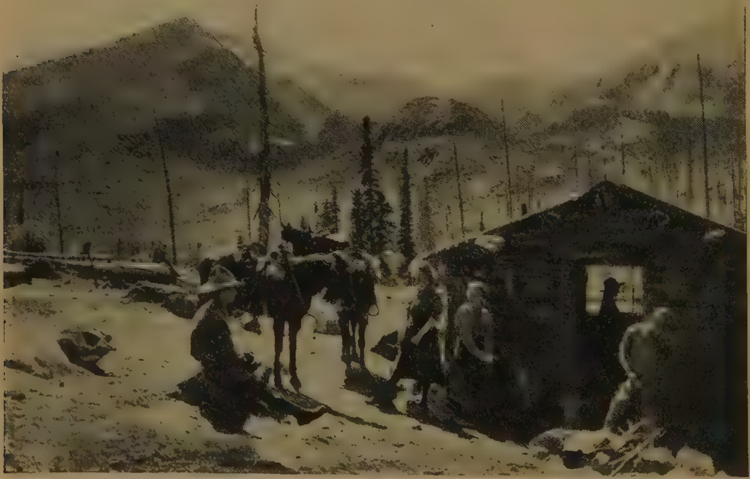
Mining. Valuable deposits of gold, silver, copper, lead, and zinc are found in many of the mountain ranges which rise above the plateaus.

Butte, in the state of Montana, is one of the chief mining and smelting towns.

(3) THE HIGH PLAINS

This is the name given to the land which slopes down towards the east from the crest of the Rockies. These plains are so far from the sea that they get little rain at any time, though in winter a good deal of snow falls, even in northern Texas.

The great industry of the region is stock-raising. Fifty years ago, in Texas and New Mexico, there were many cattle ranches whose area exceeded a thousand square miles. Nowadays, however, nearly all the land is divided into farms, which vary in size from one to two square miles. The cattle, instead of being allowed to roam over the land as in former times, are kept in fenced paddocks as on the pampas of Argentina. Drinking-water for the stock is provided by the wind-pumps which are the most prominent feature of the landscape; and hay, maize, and other crops are grown by 'dry-farming' methods, in order to supply fodder in winter.



F. H. Gooch

FIG. 127. RANCHERS' HOME

Large numbers of sheep are also reared on the High

Plains. In summer the sheep are taken by mounted shepherds to the mountain pastures. 'One man, with a saddle-horse and a dog, will care for 2,000 to 5,000 sheep. With an "outfit" consisting of a covered wagon, bedding, cooking utensils, and other accoutrements, the herder follows the flock for months at a time.'[1]

EXERCISES

1. The following table shows the numbers of different kinds of farms in the three states, Nevada, Oregon, California, though not in that order. Say which states are numbers 1, 2, 3, respectively.

State	Fruit farms	Grain farms	Cotton farms
1	33,500	6,400	5,700
2	4,000	3,600	None
3	None	60	None

2. California is only half as big as British Columbia, but has ten times as many people. Give reasons for this difference in density of population.

3. The average density of population in California is 70 per square mile; in Arizona it is only 7 per square mile. Give reasons for the difference.

4. From your atlas draw a sketch-map showing the transcontinental railways which lead to Portland (Oregon), San Francisco, and Los Angeles respectively.

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[1] Miller and Parkins, *Geography of North America.*

CHAPTER XVII

THE MISSISSIPPI LOWLANDS

The Mississippi, or 'Father of Waters,' as it was called by the Indians, drains all the great central trough which lies between the Rockies on the west and the Appalachians on the east. The Mississippi itself is nearly fifteen hundred

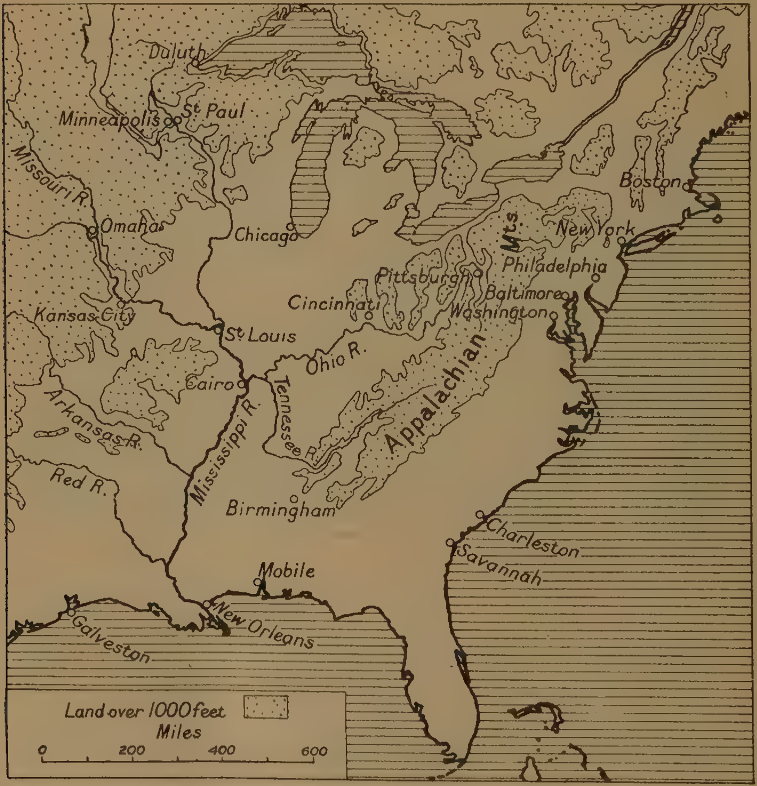


FIG. 128. THE MISSISSIPPI BASIN

miles shorter than the Amazon, but if we measure from the source of the Missouri to the mouth of the Mississippi we have the world's longest river. The Mississippi is navigable from the St Anthony Falls, near the twin city of Minneapolis-St Paul, to the Gulf of Mexico, a distance of over two thousand miles; but most traffic is conducted on its tributary the Ohio, which runs through the rich coal-field of the Appalachians.

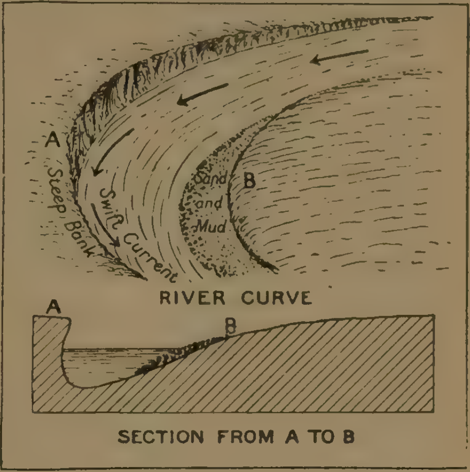


FIG. 129. CONCAVE AND CONVEX BANKS

In its course across the central plain the Mississippi provides some interesting examples of the work done by rivers. When a stream is flowing down a steep valley its course is fairly straight, as the current has sufficient power to leap over or wash away obstacles. On a plain, however, a river is easily turned aside by any obstacle, and has a winding or *meandering* course. Observe any such meandering river, and you will find that the concave bank, as at A in fig. 129, is steep, while the convex bank, B, has a gentle slope. Moreover the water at A will be deep, while at B it will be very shallow. If you watch a twig float down stream you will see the reason for these facts. The current keeps close to the outer bank A, undermining it and so keeping it steep; at B, however, there is 'slack' water, so that the mud and pebbles which have been washed down by the stream accumulate to form a gently shelving bank.

As the current is constantly wearing away the concave bank A, the meanders become wider and wider, so that a river may go through the changes shown in fig. 130.

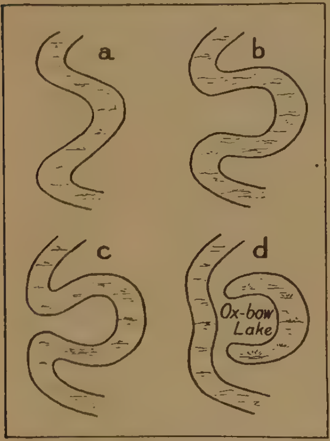
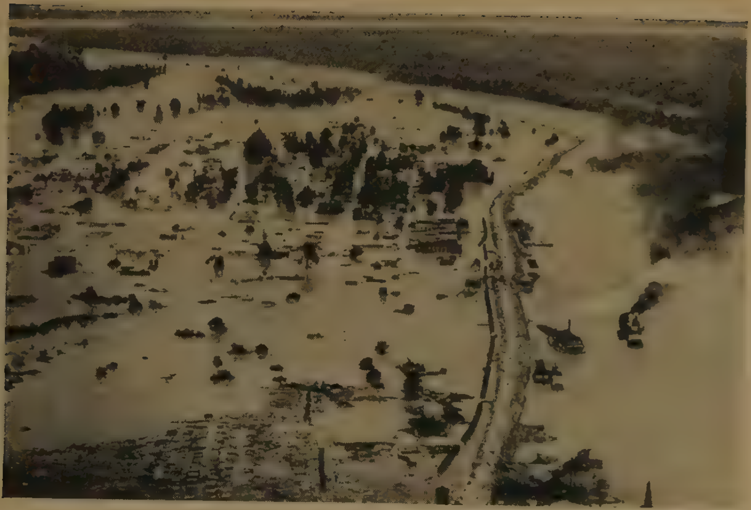


FIG. 130. FORMATION OF OX-BOW LAKES

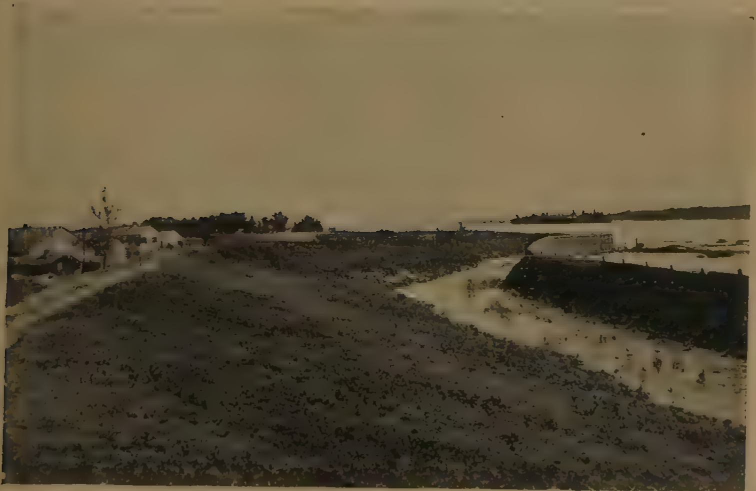
In the last of these stages the river has cut through the narrow neck of land, and its former loop is left as a lake. Such lakes are called 'mort-lakes' in England, and 'ox-bows' in North America. They are very common on each side of the Mississippi. (See also fig. 95.)

Everyone knows that river water is muddy, especially in times of flood. When the river overflows its banks a layer of mud is deposited on the level land near by. Thus in course of time the river may build up a level **flood-plain** stretching for many miles on each side. But it often happens that so much mud is deposited in the bed of the river itself that, but for its banks, it would overflow the surrounding flood-plain. This has happened in the case of the Mississippi, and the river itself is in many parts well above the level of the near-by land. In such cases there is clearly great danger from floods; consequently all along the lower course of the Mississippi artificial banks or **levees** have been built to pen in the flood waters. But these levees are always liable to be destroyed by the current, especially on the outer, concave bank. To prevent this the sides of the levee are often lined with huge wicker-work mattresses. Occasionally, in spite of all precautions, a levee breaks, or the flood waters surmount it. Then a huge area of land is suddenly flooded, and great damage and loss of life result.



E.N.A.

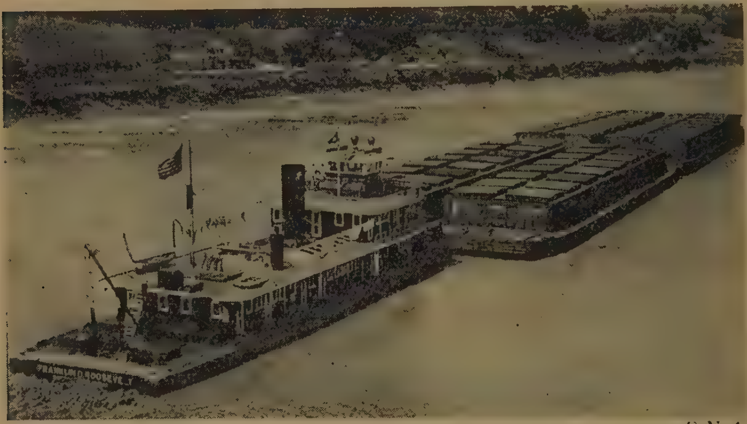
FIG. 131. THE MISSISSIPPI (*right*) IN FLOOD



Ewing Galloway, N.Y.

FIG. 132. LEVEE ON MISSISSIPPI AND STOCKADE BUILT TO PROTECT THE LEVEE

Another form of river work is seen in the great delta which has been built up at the mouth of the Mississippi. It has been calculated that the river takes down to the sea every year a cubic mile of mud. Most of this is deposited as mud-banks between which the 'distributaries' wander aimlessly to the sea. Formerly the banks at the mouths of the main exits of the Mississippi were a great hindrance to shipping. Then someone hit on the idea of building walls or jetties to confine the stream within a narrow channel, so that the speed of the water would be increased and the mud would be carried out into the deeper waters. By these means channels capable of accommodating all but the very largest ocean steamers are now kept clear.



E.N.A.

FIG. 133. BARGES ON THE MISSOURI

BELTS OF CULTIVATION

The northern part of the Mississippi lowlands is not much farther south than Britain, while the Gulf Coast lies near the Tropic of Cancer. It is not surprising, therefore, to find that different parts of the river basin have very different climates, and grow different crops. From the farming point of view the Mississippi lowlands may be divided into four belts as shown in fig. 134.

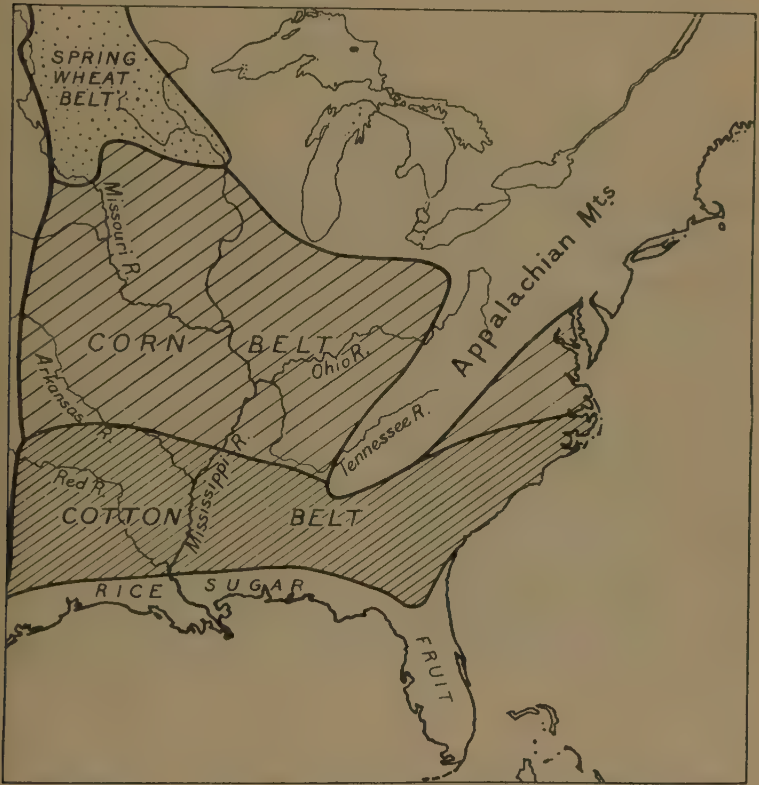


FIG. 134 BELTS OF CULTIVATION IN EASTERN UNITED STATES

(1) **THE WHEAT BELT.** This is a continuation of the Prairie lands of Canada, and the life of the wheat farmer is very much the same in both regions. The ground is ploughed in the autumn (or 'fall' as the Americans call it), and the

seed is sown after the spring thaws. Harvesting, which takes place in July, is the busiest season, and one may often see four or five binding machines at work together, harvesting between them a 'lane' of wheat thirty or forty feet wide.

(2) **THE CORN BELT.** In Britain we call almost any kind of grain 'corn,' but the Americans use the term for maize only. Thus the 'Corn Belt' is really the Maize Belt.

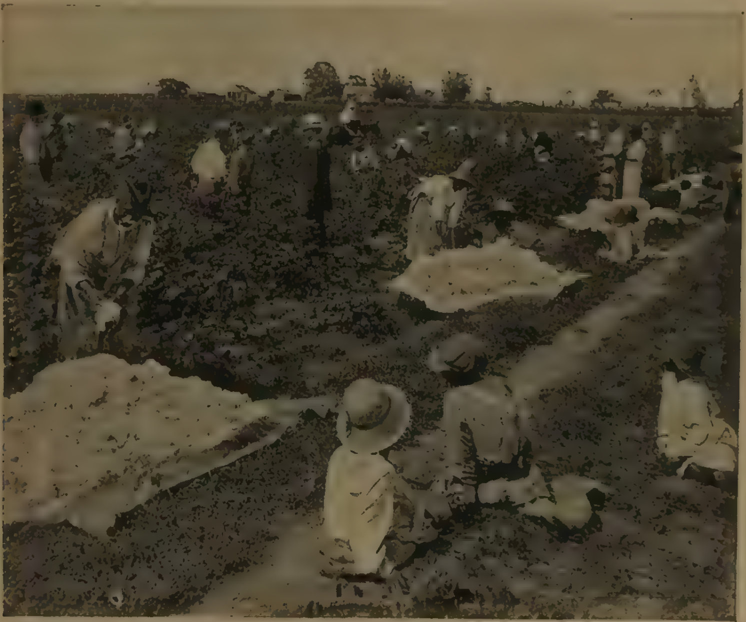
Nowhere else in the world does maize grow so well as in the Maize Belt of the United States. The crop requires warm, sunny summer days, with frequent showers of rain, and this is just the kind of weather experienced in the Maize Belt. The most anxious time is in June and July, when the great heads of maize are setting. Should the weather be dry in these months, the crop will be ruined; but should there be heavier rainfall than usual, a 'bumper' crop will result.

What use is made of all the maize which is grown? As we know, there is no great demand for maize as food for white people, and though some is sold as food for animals, and some is sent to factories where starch is extracted from it, the Corn Belt farmer grows far more maize than he can sell. Most of it is sent to market 'on the hoof'; that is, it is fed to cattle and pigs which are then sold to the great 'meat factories' at Chicago, St Louis, and other cities.

(3) **THE COTTON BELT** lies south of the Corn Belt, and stretches almost to the Gulf of Mexico. For successful cultivation the cotton plant requires hot, sunny weather and plenty of rain. Practically no cotton is grown where the rainfall is less than twenty inches a year, or where the frost-free growing season is less than two hundred days.

Cotton-growing was introduced into America in the days of slavery. When the slaves were set free in the United States after the Civil War, practically all the Negroes stayed in the district in which they had lived all their lives, and most of the cotton is still grown by descendants of the slaves. Some of them still work for wages on plantations which are owned by white men, but the majority of the Negro farmers now own or rent their farms.

It must not be thought that even in the best districts cotton is the only crop grown. Indeed, it rarely occupies more than half of the cultivated area. The farmers grow maize, peas, beans, fruit, and vegetables as food for themselves, and their pigs and poultry; nevertheless, it is true to say that 'cotton is king,' for it is the chief 'money' crop. Formerly, if the cotton crop failed, or if there was so much of it that it had to be sold cheaply, the Negro farmer suffered greatly. Nowadays, however, he has other sources of income

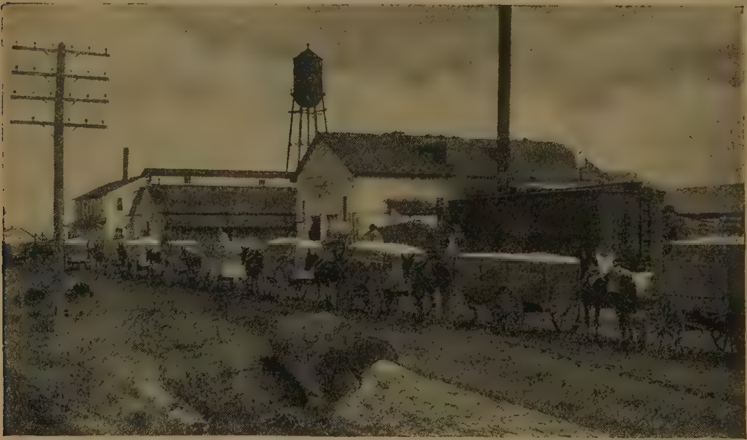


Ewing Galloway, N.Y.

FIG. 135. COTTON-PICKING, SOUTH CAROLINA

in the pigs, poultry, pea-nuts, soya-beans, etc., which he produces on land which is 'resting' from cotton growing.

One great drawback to cotton cultivation in the United States is the 'boll weevil'—so called because it eats away the 'boll' or head of cotton. Various methods, including the spraying of poison from aeroplanes, have been used to try to exterminate the pest, but without much success. It is calculated that the boll weevil costs the U.S.A. about £200,000,000 a year.

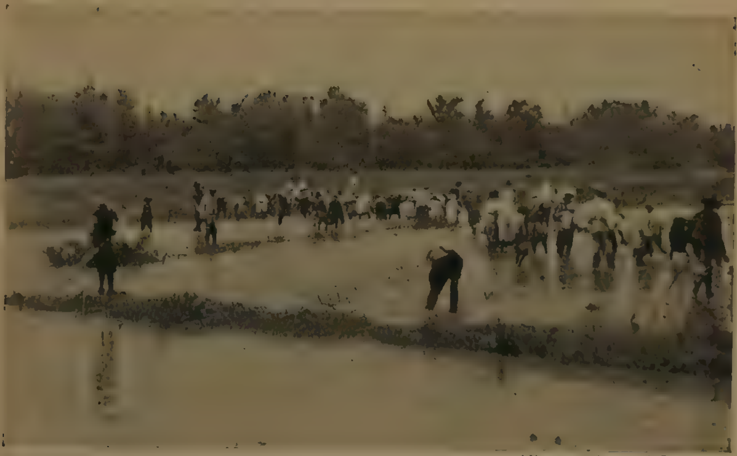


Illinois Central Railway

FIG. 136. COTTON GIN IN THE STATE OF MISSISSIPPI

Though the United States has a great cotton-manufacturing industry, nearly half the crop of raw cotton is exported, Lancashire being the chief customer.

(4) **THE RICE AND SUGAR LANDS.** Around the shores of the Gulf of Mexico the land is too waterlogged to suit cotton, but the climate and the soil favour the cultivation of rice and sugar. The methods by which rice is cultivated in this region are very different from those practised in the rice lands of Asia, South America, and the West Indies.



Illinois Central Railway

FIG. 137. WEEDING A RICE FIELD, LOUISIANA

In the latter regions most of the work is done by hand, but on the Gulf Coast of the United States machines, similar to those used on the wheat lands, are often employed to lighten the labour.

THE CITIES OF THE MISSISSIPPI LOWLANDS

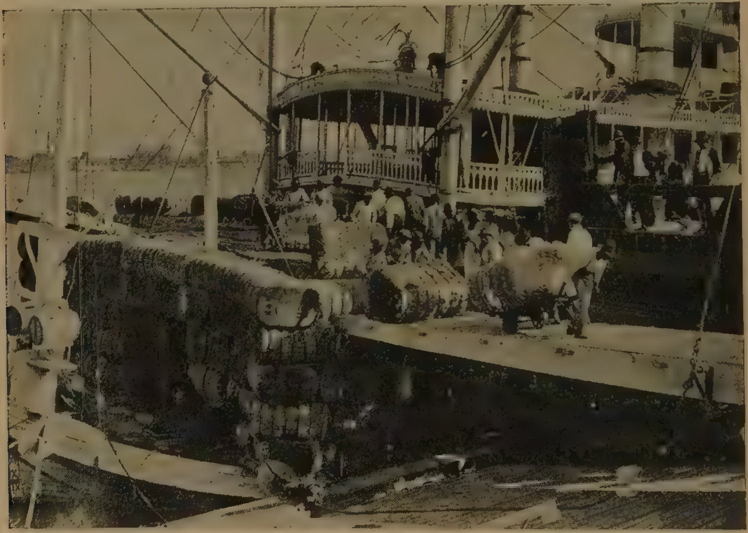
Minneapolis-St Paul. These twin cities are situated at the head of steamer navigation on the Mississippi. The St Anthony Falls, near by, provide electrical power for numerous flour mills which grind the grain grown in the surrounding Wheat Belt.

Cincinnati, situated on the River Ohio, is a great railway centre. Its chief industry is meat-packing.

St Louis has an excellent position at the confluence of the Missouri and the Mississippi. Though the town owes its origin to the meeting of the river routes and land routes at that point, very little of its trade is now done by water.

It has, however, become one of the greatest railway centres of the United States, and as it is in the Corn Belt it is one of the chief centres of the meat-packing industry.

New Orleans is the great port at the mouth of the Mississippi. The city was founded by the Spaniards, and later occupied by the French, and the old French and Spanish quarters still remain in striking contrast to the busy modern business quarters. It is one of the greatest cotton markets in the world, and also exports much timber, tobacco, and grain.



Illinois Central Railway

FIG. 138. UNLOADING COTTON FROM A STEAMER AT NEW ORLEANS

Galveston is not within the Mississippi Basin, but it is the chief port for the cotton belt. It also exports a good deal of oil from the Texan oil-field.

EXERCISES

1. Find a stream which shows marked differences between the concave and convex banks. Draw a map of two or three meanders, showing where the banks are steepest, where the water is deepest, and where the current is strongest.

2. Compare the Mississippi Basin with the Amazon Basin, in regard to their productivity. Account for the differences.

3. In an average year the United States produces 60% of the world's maize, 40% of the world's cotton, and 20% of the world's wheat. Draw squared-paper diagrams to illustrate these facts. (Let one square inch stand for the world's production of maize, one for cotton, and one for wheat.)

4. Make drawings of a head of wheat, a maize plant, a cotton boll, and a stalk of sugar-cane.

5. Find out what you can about the T.V.A. (The Tennessee Valley Authority).

CHAPTER XVIII

THE SOUTH ATLANTIC STATES

THE Appalachian Mountains which lie between the Mississippi Basin and the east coast seem rather insignificant in comparison with the mighty Rocky Mountain System. They are, nevertheless, very difficult mountains to cross, and they formed a great obstacle to the early settlers in North America. That is why so many of the eastern states have their boundaries in these mountains.

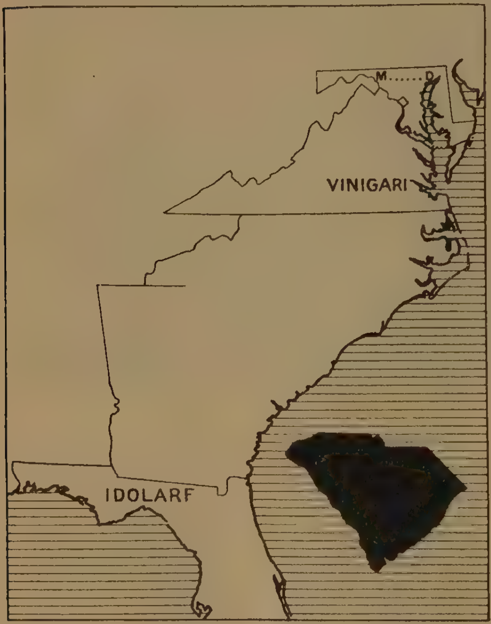


FIG. 139. THE SOUTH ATLANTIC STATES
(Trace this map and insert all the states with their boundaries. The black portion is one of the missing states)

All the states from Maryland to Florida are called the South Atlantic States. It would not be a difficult matter to learn the names of these states from the atlas; but it would probably be more fun to complete the map in fig. 139. Or perhaps you would prefer to puzzle your neighbour by a map of your own construction?

The most interesting feature of these states is the **Fall Line** (see fig. 140). To the west of this line the rocks are hard, while to the east they are more easily worn away. Where the rivers cross the line they form waterfalls, which mark the limit of navigation, and provide water-power.

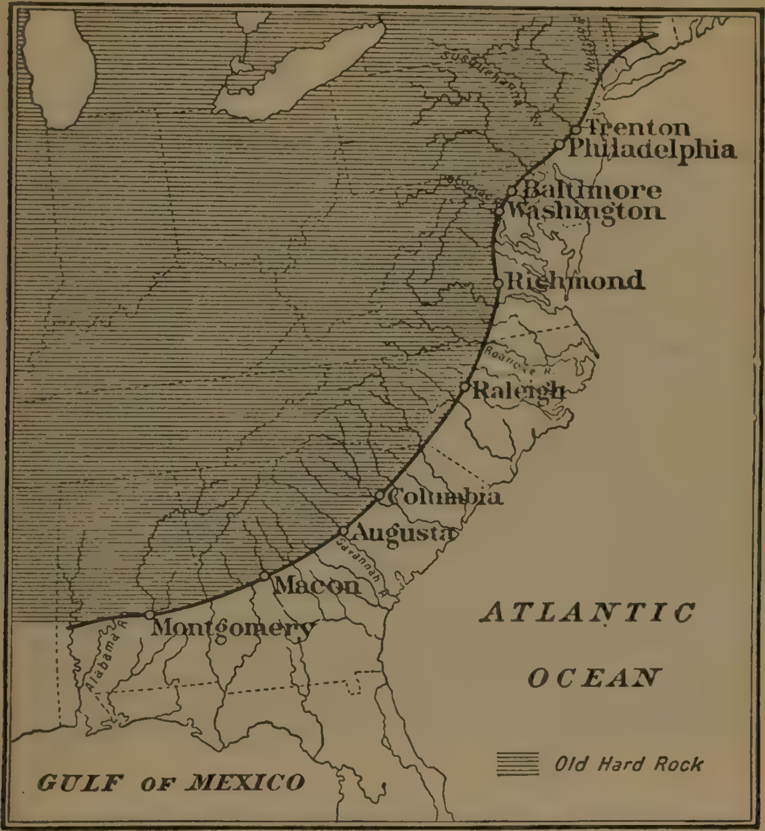


FIG. 140. THE FALL LINE TOWNS

It is for these reasons that so many towns have grown up on the Fall Line.

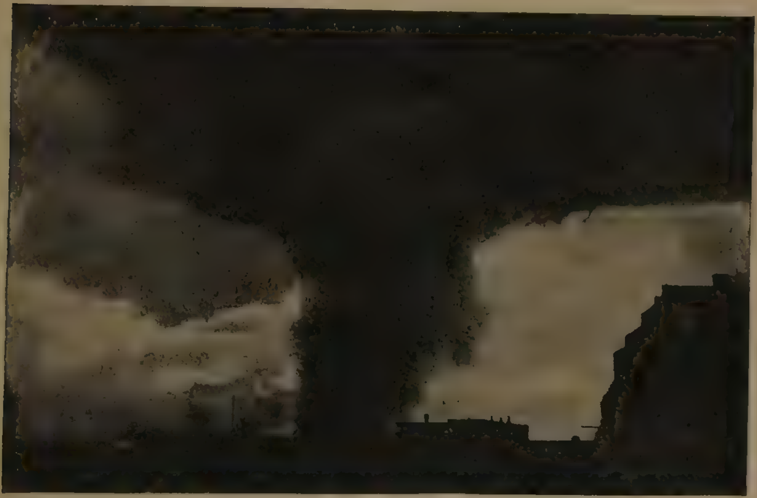
THE WORK OF THE PEOPLE

(1) **FRUIT-GROWING.** The chief fruit-growing state is Florida. The peninsula is washed by the warm Gulf Stream, and its tip almost reaches the Tropic of Cancer. Consequently, it has a warm, sunny, moist climate, which is almost ideal for growing such fruits as oranges, grape-fruit, pineapples, and limes. Strange as it may seem to those who have seen pictures of the palm-fringed bathing beaches of Florida, the chief enemy feared by the fruit-growers is

Dorien Leigh

FIG. 141. PALMS ON THE SHORE OF MIAMI RIVER, FLORIDA

frost! Once or twice a year on the average a 'cold wave' spreads over Florida, and for a few hours the temperature falls below freezing-point. Unless the orchards are protected as in California, the fruit-trees may be spoiled and the farmer ruined. In one year, for example, many millions of pineapple plants were killed by a sudden frost. Other dangers are the tornadoes and hurricanes—fierce whirlwinds which may uproot the trees and shatter the houses.



United States Weather Bureau

FIG. 142. A TORNADO PASSING THROUGH A TOWN

In spite of these difficulties Florida produces about six million boxes of oranges, and half as many boxes of grape-fruit, each year.

It must not be imagined, however, that the whole of Florida grows fruit. Most of the interior of the peninsula is covered with swamp and forest, such as the 'Everglades.'

(2) **COTTON-GROWING.** As will be seen from fig. 134, the Cotton Belt extends to the east of the Appalachians; indeed

cotton-growing in North America began on the coastal plain between the Appalachians and the sea.

Besides the ordinary qualities which are still grown on this coastal plain, a small quantity of the very best cotton—the Sea Island variety—is grown on islands near the coast.

(3) **TOBACCO-GROWING.** Everybody has heard of Virginia tobacco; but though Virginia certainly grows a large part of the tobacco called by that name, the state of Kentucky, on the western side of the Appalachians, grows nearly five times as much.

Though tobacco will grow almost anywhere, the best qualities can be grown only on particular kinds of soil and by people who know exactly how the crop should be treated. Moreover, a great deal of labour is required to run a tobacco plantation; consequently it is usually grown on quite small patches, and one family may not be able to look after more than four or five acres.

Even when the tobacco leaf has been harvested, it is not by any means ready for the market. It is first 'cured' by allowing currents of warm air to circulate around the leaves, and then stacked in heaps to allow fermentation to take place. Later it is pressed into bales which are stacked in warehouses for several years in order to 'mature' the leaves.

Every year tobacco to the value of over £100,000,000 is exported from the United States, **Richmond** being the chief tobacco-collecting and manufacturing centre.

(4) **MINING.** Along the western edge of the Appalachians stretches one of the largest coal-fields in the world. Two of the chief mining areas in this coal-field are the **New River** district in West Virginia, and the **Birmingham** district in Alabama. Near Birmingham there are also rich iron mines, and as there is plenty of good limestone near by, it is not surprising that the city has become one of the world's greatest iron and steel manufacturing centres.

(5) **COTTON-MANUFACTURING.** The towns near the

Fall Line have every advantage for the manufacture of cotton goods. Cotton is grown near by; electricity derived from the waterfalls can be used to run the machinery, or coal can be brought from the Appalachian coal-field; and the moist climate suits the spinning and weaving of cotton.

Though Negroes are not generally employed in the cotton factories, there are large numbers of 'white' people in the Appalachians who are not able to earn a satisfactory livelihood by farming, and who are, therefore, willing to work in the cotton factories.

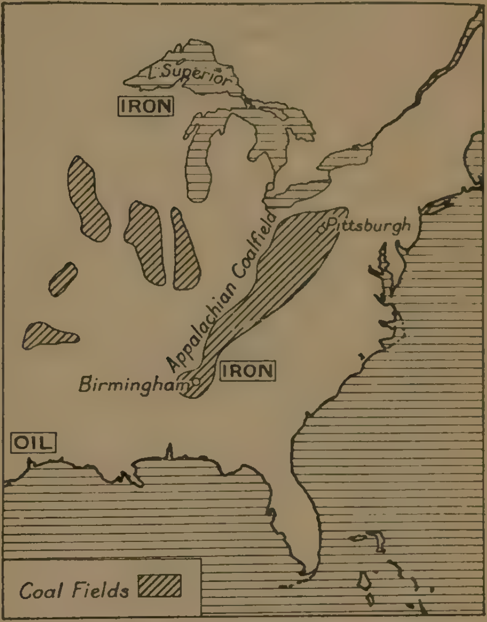


FIG. 143. THE COAL AND IRON FIELDS OF EASTERN UNITED STATES

Cotton-manufacturing on a large scale in the United States first grew up in New England, although the region produces neither cotton nor coal, and the wages of the workers are high. In the South Atlantic States on the other hand there are local supplies of cotton, coal, and hydro-electricity, and wages are rather lower than in New England, as food is cheaper and the climate warmer. Consequently the cotton-manufacturing industry of the Atlantic States has grown rapidly at the expense of that of New England.

EXERCISES

1. Find out what you can about the following: Miami, Palm Beach, Key West, Daytona Beach, the 'Mason Dixon' line.

2. Draw a sketch-map of the South Atlantic States, and shade the chief tobacco-growing states.

3. Say how Florida resembles and differs from California.

4. Why has Florida much warmer winters than the interior of Texas?

5. The following table shows the sources of British imports of tobacco in a recent year (million lbs.):

U.S.A.	S. Rhodesia	India and Pakistan	Nyasaland	Canada	Turkey
172	44	23	14	12	10

Draw a cigarette to represent the world's total, and mark off the contribution of the United States.

6. Draw diagrams on squared paper to show the world-production of cotton in a typical year:

Country	U.S.A.	India and Pakistan	Russia	China	Brazil	Egypt
% of world production	40	13	12	8	5	6

7. Find in your atlas other districts where the chief towns are situated on a definite line, as they are on the Fall Line of the U.S.A. Draw sketch-maps of these districts, and try to find out the reasons why the towns have grown up in line with each other.

CHAPTER XIX

THE BUSY NORTH-EAST

If we draw a circle on a population map of North America and divide it into four quadrants, as in fig. 144, we notice the following points:

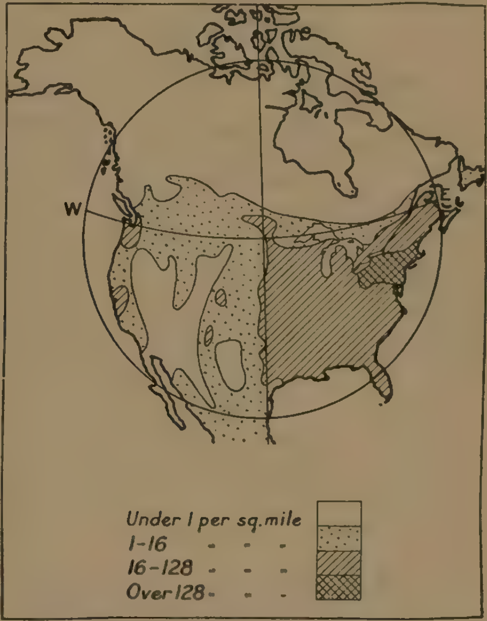


FIG. 144. POPULATION MAP OF NORTH AMERICA

(1) The north-eastern quadrant is practically unpeopled. It will be remembered that this is the cold, barren region known as the Canadian Shield (see p. 103).

(2) The north-western quadrant is also practically unpeopled, with the exception of the prairies of Canada and the district around Vancouver.

(3) The south-western quadrant is also scantily populated, the only exceptions being the western coastal states and part of the Mississippi Basin. Most of this quadrant is either too high or too dry for cultivation.

(4) The south-eastern quadrant—that is, the eastern half

of the United States and the St Lawrence Basin of Canada—is the only part of North America which is densely peopled.

Within this quadrant is a rectangle, stretching from the Great Lakes to the Atlantic Coast, where the density of population is very great. This is the busy north-east which we are to learn about in this chapter. In this region, which is shown in greater detail in fig. 145, half of the manufacturing industries of the United States are carried on.

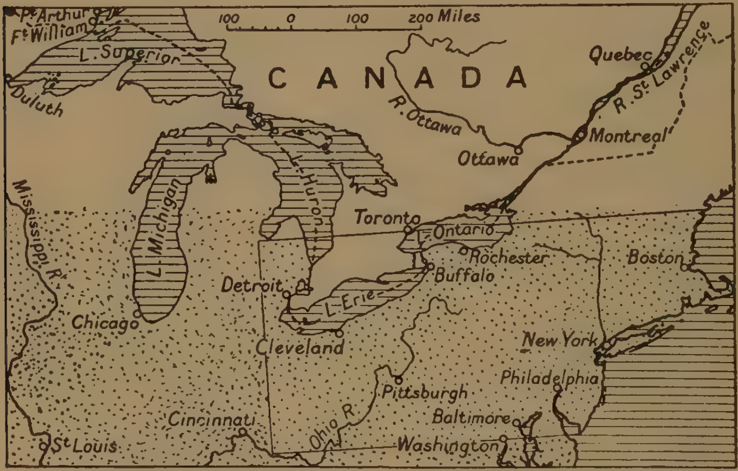


FIG. 145. THE CHIEF MANUFACTURING AREA IN NORTH AMERICA

WHY THE NORTH-EAST HAS BECOME THE HOME OF INDUSTRY

When we find that factories are crowded together in any district we may be sure that there are good reasons why they have been built there. To find out what these reasons are, imagine that you were intending to build a great factory to manufacture some commodity. Before deciding on any particular site you would have to ask yourself many questions, such as:

Are the **means of transport** good? That is, are there roads, railways, and waterways, to bring raw materials, and take away manufactured goods?

Is cheap **power** available to drive the machinery?

Are the necessary **raw materials** obtainable near by?

Are their sufficient **work-people** in the neighbourhood to run the machines?

Is the district near enough to the **markets** where the manufactured goods will be sold?

To these and similar questions the manufacturing belt of the north-east could answer, 'Yes.'

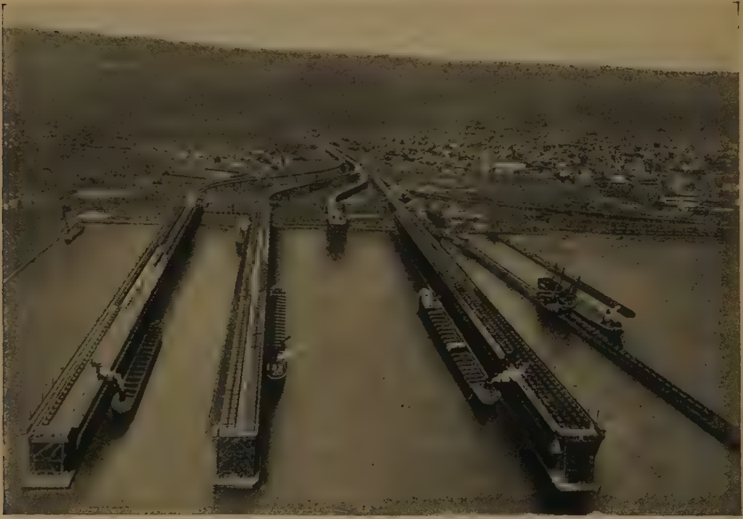
Transport facilities are provided by sea, canal, road, and railways. The sea-coast has many long, deep inlets which provide shelter for the largest ocean steamers, and in addition there is the splendid inland waterway of the Great Lakes. The Erie Canal which links New York with Lake Erie, though not much used nowadays, was a great help to the growth of industry in this region. As for roads and railways, there is now no lack of these; indeed, the valley of the Hudson River, to give only one example, can hardly be surpassed as an avenue of trade and commerce.

Power was obtained in early times from the numerous waterfalls and rapids in the region. Then came the era of steam, and it was found that the north-east had vast supplies of coal in the **Pennsylvania coal-field,** which supplies as much coal every year as all the British coal-fields added together. It was in the same region, too, that petroleum was first produced in North America, and for many years the Appalachian oil-field was the greatest in the world.

Again, when electricity began to be used for driving machinery it was found that the north-east had great advantages in this direction also. Electricity generated at Niagara

Falls is used to run factories which may be as much as two hundred miles away; and in the northern Appalachians there are many other hydro-electrical stations which supply power to the factories of New England.

Raw materials. When manufacturing first began in the United States the north-east was well supplied with certain raw materials. **Timber** was obtained from the forests of the Appalachians, and gave rise to the manufacture of wood-pulp and paper. Nowadays, however, much of the pulp-wood is imported from Canada. **Iron ore** was formerly mined in Pennsylvania, but nearly all the ore now used is brought from the western end of Lake Superior. Here, near Duluth, is one of the greatest deposits of iron ore to be found anywhere in the world. It is so thick, so soft, and so near the surface that it is dug out by great steam-navvies, which lift four or five tons at a time, and tip it into



Duluth Chamber of Commerce

FIG. 146. IRON ORE DOCKS AT DULUTH

the waiting trucks. The ore is then conveyed by lake steamers to ports on Lake Erie, whence it is sent by rail to the Pennsylvanian coal-field.

Cotton, which is the third important raw material used in the north-east, cannot be grown in the region but has to be brought from the cotton belt of the south.

Work-people and markets. The chief reasons why manufacturing has prospered most in the north-east are that this district was originally settled by energetic, hard-working people, and that in later years it has attracted most of the immigrants, who provided both the 'labour' needed to run the factories, and the 'market' for the finished products.

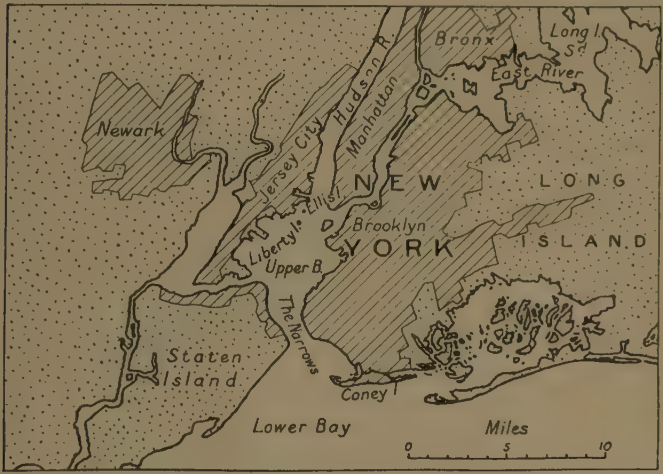
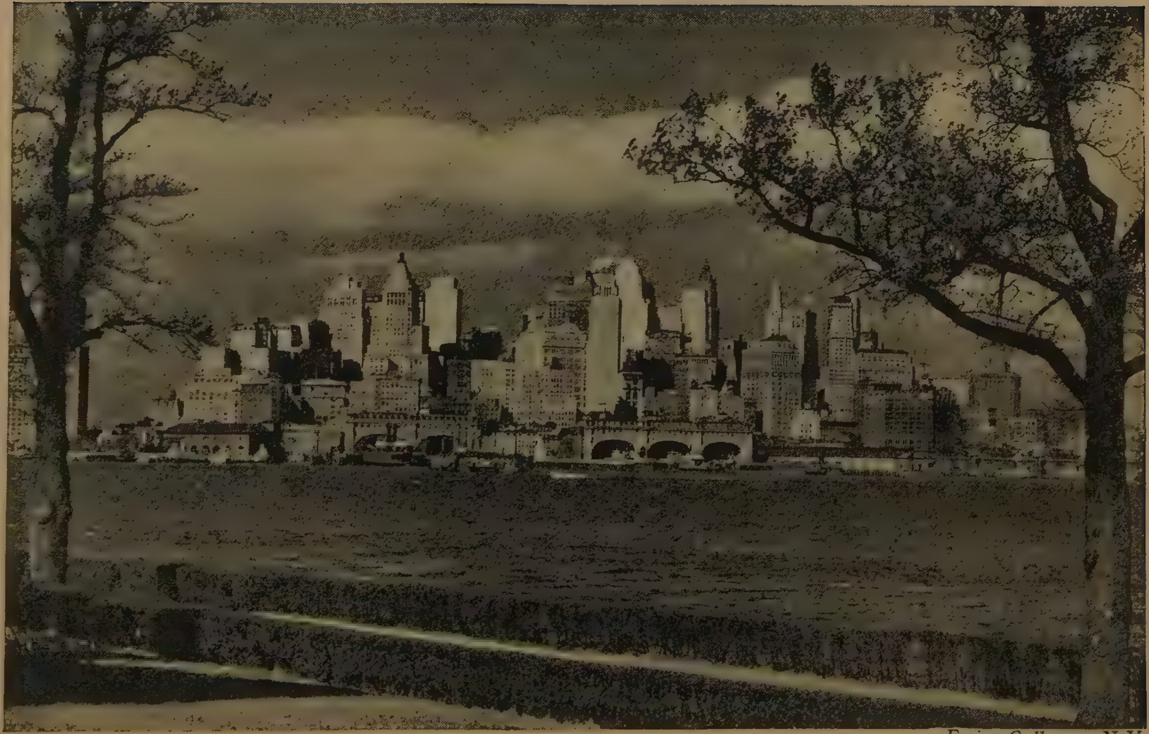


FIG. 147. MAP OF NEW YORK

THE GREAT CITIES AND THEIR INDUSTRIES

New York is the largest city in America, the second largest city in the world, and one of the greatest seaports in the



Ewing Galloway, N.Y.

FIG. 148. THE SKYSCRAPERS OF MANHATTAN, NEW YORK

world. It owes its importance to the fact that it is the chief gateway to the interior of the continent. The Hudson Valley is a great trench leading straight to the Great Lakes, and so to the great plains of the Mississippi Basin. When the Erie Canal was constructed in 1825, New York gained such an advantage over its rival ports that it quickly surpassed them in size and in volume of trade. To-day it conducts nearly half the foreign commerce of the country, and, besides being the centre of banking and finance, is the greatest manufacturing city on the continent.

As a port it has the advantage of deep, sheltered, ice-free harbours which can be entered by the largest ocean steamers at any state of the tide. The entrance to the Inner Harbour, in which stands the famous Statue of Liberty, is by the Narrows, a mile-wide channel between Staten Island and Long Island.

The city itself first grew up on Manhattan Island, and it is there that the chief business centres are situated. As ground space could not be found for all the offices, shops, hotels, etc., which were needed, huge 'skyscrapers' have been built. Many of these are over six hundred feet high, and their foundations of steel piers go down nearly a hundred feet below the level of the pavement. The Empire State Building, which is the tallest structure in the world, contains 85 storeys and is 1,248 feet high.

Boston is the chief city and port of the New England States, which were founded by the Pilgrim Fathers and other English settlers. It was for long a more important city than New York, but suffered from the fact that it is shut off from the interior by ranges of mountains. Though these are now crossed by railways, Boston transacts only about one-tenth as much trade as New York. It is, however, the chief American wool port, and has many factories which manufacture woollen goods and ready-made clothing. It is also one of the world's greatest centres for the manufacture of boots and shoes, while Waltham, near by, is world-famous for 'Waltham lever' watches, of which more than a million are made every year.

Some thirty miles farther north is America's greatest textile manufacturing district. **Fall River** and **New Bedford** are specially noted for cotton goods, and **Lawrence** for woollen goods.

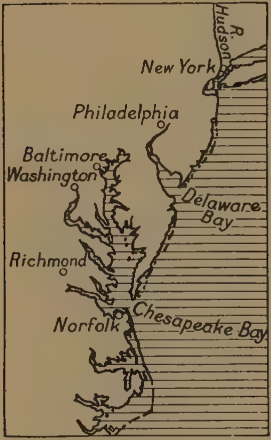


FIG. 149. THE GREAT PORTS OF EASTERN UNITED STATES

Philadelphia. In 1681 William Penn obtained from Charles II a grant of land at the head of Delaware Bay. He decided to establish there a colony in which his Quaker ideals of religious and social freedom could be put into practice. The state he founded was called Pennsylvania, and its capital, Philadelphia—'the city of brotherly love.' He made a treaty of friendship with the Indians, agreeing that 'all paths should be free and open; that the doors of the white men should be open to the Indians and the doors of the Indians to white men, and that they should make each other welcome as friends.' The 'frame of government' which Penn drew up for Pennsylvania formed the model for the Federal Constitution of the U.S.A.

Philadelphia is now the third city of the United States, and one of the greatest of its ports and manufacturing centres. Its chief industries are sugar refining, ship-building, and the manufacture of woollen goods.

Baltimore, situated at the head of Chesapeake Bay, is a great rival of Philadelphia, both as a port and a manufacturing centre. Its chief industries are ship-building and the manufacture of textiles and metal goods.

Like Philadelphia, it is situated where the Fall Line runs into the sea. It has, therefore, all the advantages of the Fall Line towns (see p. 187), plus those of a seaport. In addition it is opposite easy passes in the Appalachians, through which railways run to the Mississippi Basin.

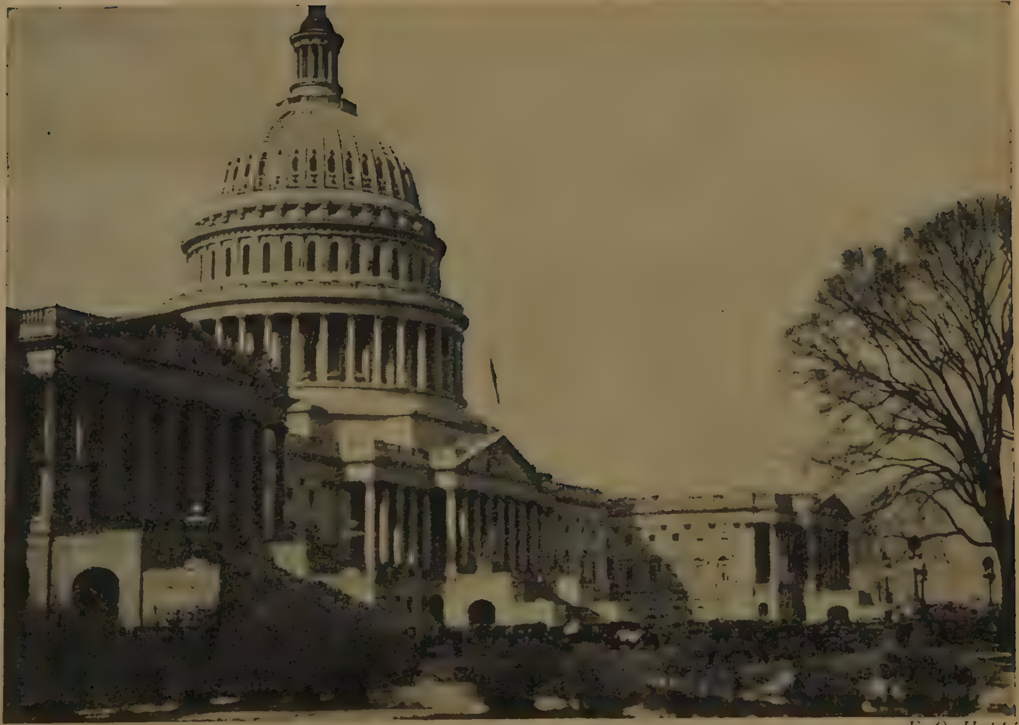
Washington, the capital of the United States, is situated on the Potomac River, which flows into Chesapeake Bay. The district around it is a separate state, called the District of Columbia, and the city is generally called Washington D.C., to distinguish it from the State of Washington, and from other cities of the same name. Its most famous buildings are the Capitol, in which Congress meets, and the White House, which is the official residence of the President of the United States.

Pittsburgh is sometimes called 'the iron city,' since it is America's greatest iron and steel manufacturing centre. The industry grew up there because coal, iron ore, and limestone were obtainable in the vicinity. Nowadays practically all the iron ore is obtained from Duluth at the head of Lake Superior. It is sent by steamer to such ports as Cleveland on Lake Erie, and thence by rail.

THE LAKE-SIDE TOWNS

Chicago, which is situated on Lake Michigan, is the world's greatest meat-packing centre. But the city has many other claims to fame. It is the eighth largest city in the world, and holds the record for rapidity of growth—a hundred years ago it was a little 'outpost of civilization'; now it has a population of 3,500,000. It is the chief grain market in the world, and the price of wheat in every country is largely decided in 'the pit,' as its wheat exchange is called. It is also the world's largest railway centre—no less than twenty-seven main lines run into the heart of the city.

The reason for the rapid growth of Chicago is that it is

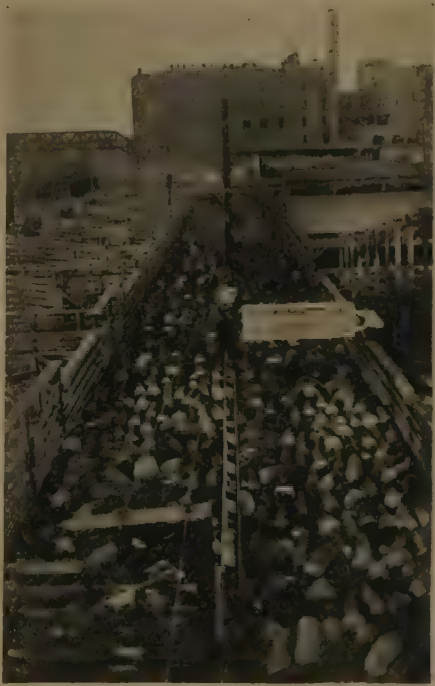


E. O. Hoppé

FIG. 150. THE CAPITOL, WASHINGTON

well situated for trade. It is at the southern limit of navigation on the Great Lakes; a canal connects it with the Mississippi; it is the most convenient market for the Wheat Belt and the Corn Belt; and it is situated midway between the Lake Superior iron-field and the coal-field of Pennsylvania, while it has also local supplies of both coal and oil.

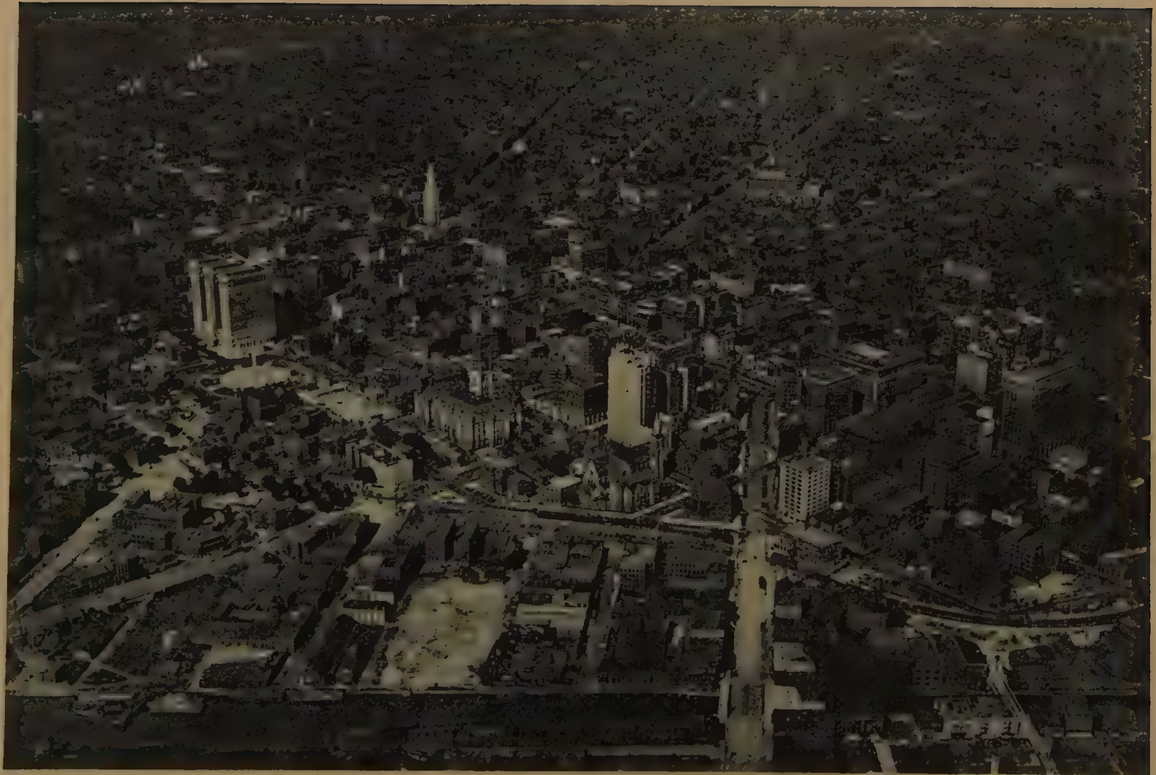
Detroit is situated close to the Canadian border, midway between Lakes Huron and Erie. Next to New York and Chicago, it is the most important manufacturing city in America. Nearly all its industries are connected with transport. Long ago it specialized in the making of carts and carriages; then it turned to the manufacture of Pullman cars and railway wagons; and in modern times it has become the world's greatest centre for the manufacture of motor cars, particularly the 'Ford.'



E. H. Gooch

FIG 151. IN THE STOCKYARDS, CHICAGO

Buffalo is situated at the eastern end of Lake Erie, and near the upper end of the Niagara River. It owes its importance to the fact that at that point the land route from New York meets the lake routes. If we think of the



Buffalo Chamber of Commerce

FIG. 152. AIR VIEW OF BUFFALO

Great Lakes and the Hudson Valley as a 'funnel' down which are poured streams of wheat, timber, iron, and so on, we can say that Buffalo is situated just where the body of the funnel joins the neck.

As it can so easily obtain raw materials, and also plenty of cheap electricity from Niagara, it has developed a great many industries, the chief of which are meat-packing, flour-milling, and oil-refining.

E. H. Gooch

FIG. 153. IN THE FORD FACTORY, DETROIT

EXERCISES

1. Consider some manufacturing town in your own neighbourhood, and see whether it fulfils the conditions for the development of industries mentioned at the beginning of this chapter.

2. Choose one industry in your own locality, and find out where its raw materials come from, and where the finished products are sent.

3. Draw a sketch-map to show the route by which the iron ore from Duluth reaches Pittsburgh. What is the length of the route?

4. 'There are more Germans in New York than in any German city except Berlin; there are more Irish than in Dublin; more Italians than in Rome.' Find out the least number of each of these nationalities there can be in New York.

5. New York has an average January temperature of 31° F., while Miami (Florida) has an average of 66° F. for the same month. Say how Miami profits by this difference.

CHAPTER XX

THE UNITED STATES AS A WHOLE

(1) **The People.** The United States is sometimes spoken of as the 'melting-pot of peoples.' This is because it has been peopled by immigrants from a great many countries. About a quarter of its 160,000,000 inhabitants are said to be descended from the English Puritans—the Pilgrim Fathers and others—who settled in New England in the seventeenth century, and nearly half the total population is of Anglo-Saxon origin.

But great streams of people from other European countries have poured into the 'melting-pot.' Between 1900 and 1910, for example, over two million Italians and more than one and a half million Russians settled in the land. There was no difficulty in finding work for all these people on the land and in the mines, factories, and workshops, but the great problem was to make them all good citizens of the United States.

It almost seemed at one time as if the country would be swamped by the 'foreign born,' but in 1921 a law was passed strictly limiting the number of immigrants allowed from any country.

The United States has, however, one very serious problem still unsolved. There are in the country more than 12,000,000 Negroes, descendants of the slaves who were brought from Africa to work on the cotton and tobacco plantations in the seventeenth century. They are, naturally, most numerous in the Cotton Belt, and in that region there is still some friction between 'black' and 'white.' Over the whole country, however, the Negroes are gradually gaining equality with the 'whites' in such things as education, wages, facility for travel, and opportunity to improve their standards of living.

(2) **The country's wealth.** The United States is by far the wealthiest country in the world. Of course, things cost more in the United States, but wages are so high that people there are normally much better off than in any other country in the world. With only seven per cent of the world's people the United States enjoys nearly a third of the world's total income per year. To have the same standard of life as the average American citizen an Englishman would need nearly twice his present income, and an Indian twenty times a much.

How is it that the United States became the richest country in the world? One reason undoubtedly is that it was peopled by immigrants from the vigorous and enterprising nations of western Europe. A second reason is that its climate, though not nearly so pleasant as our own, suits the white man and enables him to work his hardest. The most important reason, perhaps, is that Nature has been very lavish with her gifts.

In few parts of the world are there such rich soils as those of the Wheat Belt, the Corn Belt, and the Cotton Belt of the United States. In no other country are there such vast stores of coal, iron, oil, and other minerals. Nowhere else did the white man find such vast unpeopled spaces capable of producing such great quantities of foodstuffs and raw materials, and of supplying the power necessary for building up great industries.

Let us see how the United States stands as a producer of the world's commodities. She is the world's chief producer of wheat, maize, cotton, timber, fruit, and meat; she is the foremost manufacturing country in the world; and she produces more than a third of the world's coal, more than half the petroleum, and nearly half the iron and steel of the world.

The very size of the country is a great advantage, too. Occupying half a continent, she can draw upon the products of a great variety of natural regions. In Europe the different countries have set up 'tariff walls' on their frontiers, which stop as much trade as great mountain ranges would do. Although the United States has high tariffs against the products of other countries, each state *within* the United States is quite free to trade with any of its sister states, and this gives American farmers and manufacturers a great advantage over those of Europe.

(3) **Foreign Trade.** Though the United States produces such a large part of the world's goods, she depends in many ways on other countries. She has to buy great quantities of such special foodstuffs as sugar, coffee, tea, and cocoa; such raw materials as rubber, silk, and wool; and a host of manufactured articles produced by the skilled workmen of other countries.

To pay for such imports she has, of course, to sell things to other countries. Among her exports, raw cotton and tobacco rank very high. Of manufactured goods, motor cars are among the most important exports. This is, no doubt, partly because Henry Ford happened to have been born in America. But no other country in the world could have given him such opportunities for 'mass production' as the United States. Nowhere else would he have found it so easy to get raw materials, and power to run his workshops; and in no other country would he have found so many people with money enough to buy motor cars.

GREENLAND

Greenland, the largest non-continental island in the world, was discovered by the Vikings a thousand years ago. Early settlements succumbed to the hard climatic conditions, but Danish missionaries landed there about two hundred years ago, and ever since then Greenland has been under the rule of Denmark.

Almost the whole land surface is covered by a sheet of ice which is in places more than two miles thick. On the southern edges, however, there are narrow strips of land which are ice-free in summer, and in these areas live the 20,000 Eskimos and the few hundred white traders who make up the total population.

In recent years the climate of the coastal regions has become noticeably warmer, probably because of the increased strength of a branch of the Gulf Stream which washes the coast. The changes in the ocean currents have also brought a large influx of cod, which have replaced the seals as the chief source of livelihood of the Greenlanders. As a consequence the traditional kayaks have been replaced by rowing boats or motor boats, harpoons by fishing lines, and a diet of seal and whale meat by imported foodstuffs.

Greenland is rich in minerals, but the only one to be worked on any large scale is cryolite, a scarce mineral which is essential for the smelting of aluminium ore.

As in the case of Alaska, high altitude flying over arctic regions has given new importance to Greenland. The shortest, or 'great circle' route between western Europe and the middle of North America passes over the southern tip of Greenland, and an air base for a regular flight from Copenhagen to Los Angeles has been established there. The shortest air-route between Russia and New York also passes over Greenland, so the United States has established, by agreement with Denmark, a chain of air bases along the coasts. *Thule*, the most northerly of these air bases, is situated in the extreme north-west, less than a thousand miles from the North Pole.

CHAPTER XXI

OUR OWN ISLANDS

Suppose that, instead of merely reading about North and South America, we had spent a few years travelling through the length and breadth of the two continents.

On our return we should find ourselves constantly comparing the countries we had visited with our own land. Let us then briefly survey the geography of the British Isles, so that we may be in a position to make such comparisons.

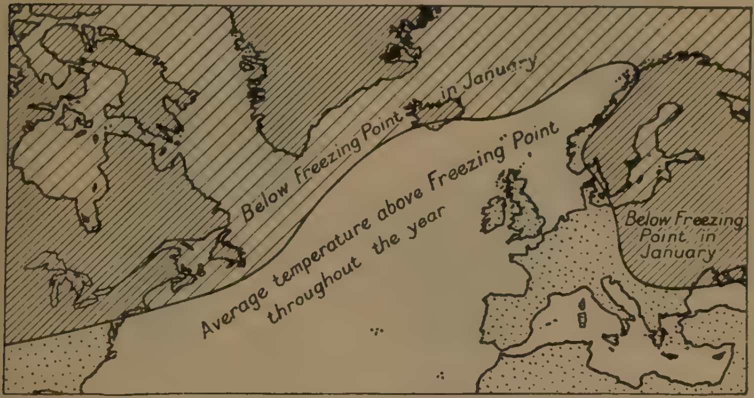

Below Freezing Point in January
Average temperature above Freezing Point throughout the year
Below Freezing Point in January

FIG. 154. 'WESTERN EUROPE HAS VERY MILD WINTERS'

CLIMATE

Some years ago the writer returned home after voyaging for many thousands of miles in the Atlantic, Indian, and

Pacific Oceans. The thing that impressed him most on first landing in England was the vivid green of the meadows. This may seem a very insignificant detail, but it sums up many important facts about our climate. In every season of the year our meadows are green because, though there are great variations in the weather from week to week, and even from day to day, we have no dry season, no really hot season, and no really cold season.

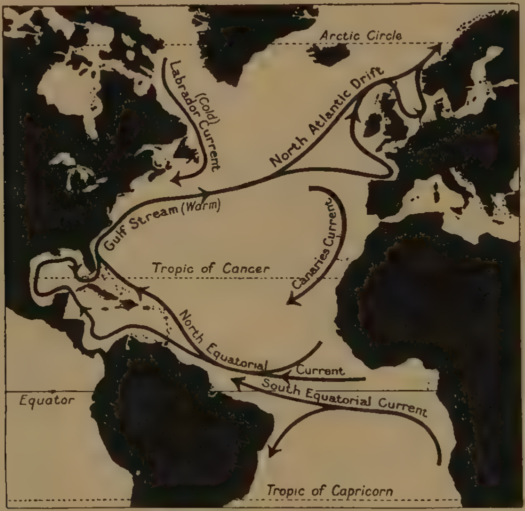


FIG. 155. THE CURRENTS OF THE NORTH ATLANTIC

If we look over the map of the world we shall find that there are few parts which are never too hot or too cold for comfort, or which do not suffer from drought during one season or another.

It is in its winter climate that our country is most highly favoured. Fig. 154 shows those parts of the Old World which have remarkably mild winters for their latitude. No part is so favoured in this respect as the British

Isles and the neighbouring coastlands of Europe. The exceptional mildness of our winters is due mainly to the south-westerly winds which blow over the relatively warm Atlantic. Another important factor is the Gulf Stream which brings to our shores a good deal of heat from the Equatorial Regions.

Strange as it may seem, we owe much of the benefit derived from the Gulf Stream to the shape of South America. Fig. 155 shows two warm currents flowing westward across the Atlantic near the Equator. These Equatorial Currents turn to north and south when they reach the coasts of America. The South Equatorial Current is split by the 'shoulder' of South America, so that instead of the whole of the water remaining in the southern hemisphere, half of it is diverted into the North Atlantic, where it joins the Gulf Stream.

The latter current, therefore, brings one and a half times as much warm water from the Equatorial regions as it would do if the 'shoulder' of South America had been slightly farther north. When next you complain, then, that you do not get sufficient chance for skating, you know where to put some of the blame—on the 'shoulder' of South America!

DENSITY OF POPULATION

Anyone coming to England from the wide open spaces of North or South America would be sure to think our country very crowded. Hardly anywhere else in the world are there so many cities, towns, villages, and hamlets within an equal area. If all the people of England were distributed evenly over the land, every square mile would contain over 750 people. In Canada, the density of population is only 6 per square mile; in the United States it is 50 per square mile, and in South America the average is only 15 per square mile. Even in Rhode Island, the smallest and most densely peopled State of the U.S.A., the density of population is only 650 per square mile.

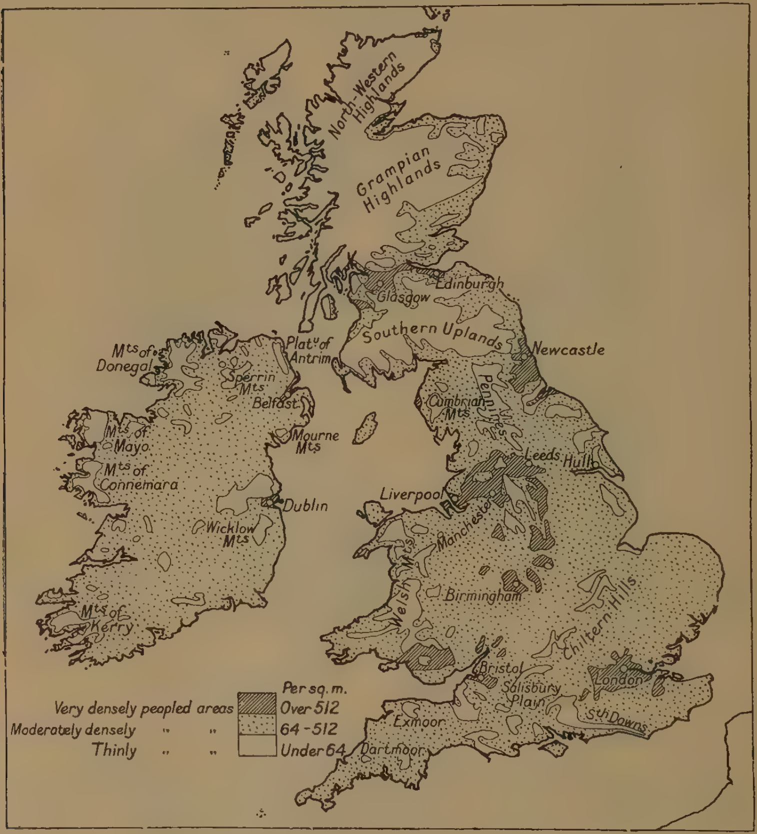


FIG. 156. BRITISH ISLES—POPULATION

VERY THINLY PEOPLED AREAS

As will be seen in fig. 156, however, the mountainous parts of our islands are very scantily populated. (Learn the names of the various mountain ranges shown in fig. 156, and then see how quickly you can 'spot' them on an atlas map. When you can do this, see if you can insert them on an outline-map of the British Isles.) Now try to solve this little problem:

In Britain hardly any land over 1,000 feet in height is worth cultivating; but nearly all the wheat lands of the Canadian prairies are over 1,000 feet above sea-level; in the Great Basin of Utah the fertile irrigated fields are at a height of 4,000 feet; and in Peru cultivation is carried on at a height of 9,000 feet. Can you give the reason for these differences?

VERY DENSELY PEOPLED AREAS

If we compare the population map with the coal-fields map (fig. 157), we see immediately that most of the very densely peopled districts of Britain coincide with the coal-fields. The reason is that coal is the source of the power which drives the machinery in our factories and workshops; consequently nearly all the great industries of the country have grown up on the coal-fields.

Each coal-field specializes in one or more industries. The **Lancashire coal-field** specializes in cotton-manufacturing; the **Yorks, Derby, and Notts coal-field** supports the woollen industry of the West Riding, the steel industry of Sheffield, and the lace industry of Nottingham; the **Northumberland and Durham** and the **Scottish coal-fields** are specially concerned with engineering and ship-building. **North Staffordshire** manufactures pottery, and **South Staffordshire** produces all kinds of metal goods, while **South Wales** is specially noted for the manufacture of tin-plate.

In addition to these industrial areas, there are other very densely peopled districts situated near the great estuaries. The chief of these is, of course, **London**, which is not only the capital of the Kingdom and of the Commonwealth, but is also our greatest port, and the centre of our roads and railways, and a very important manufacturing area. It has a great variety of industries, the most important being the preparation of foodstuffs, light engineering, and the making of clothing, leather, and chemicals.

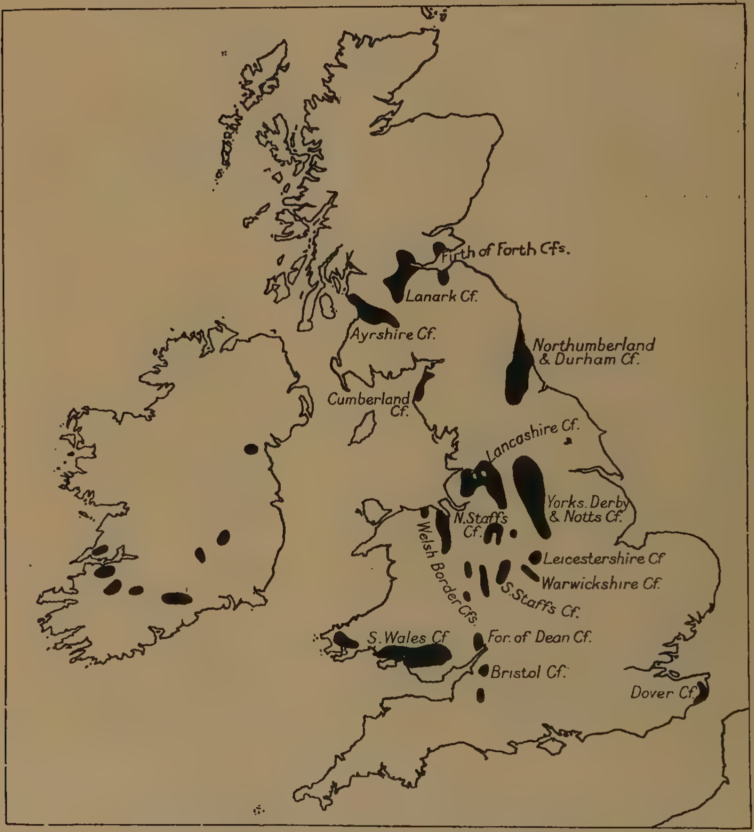
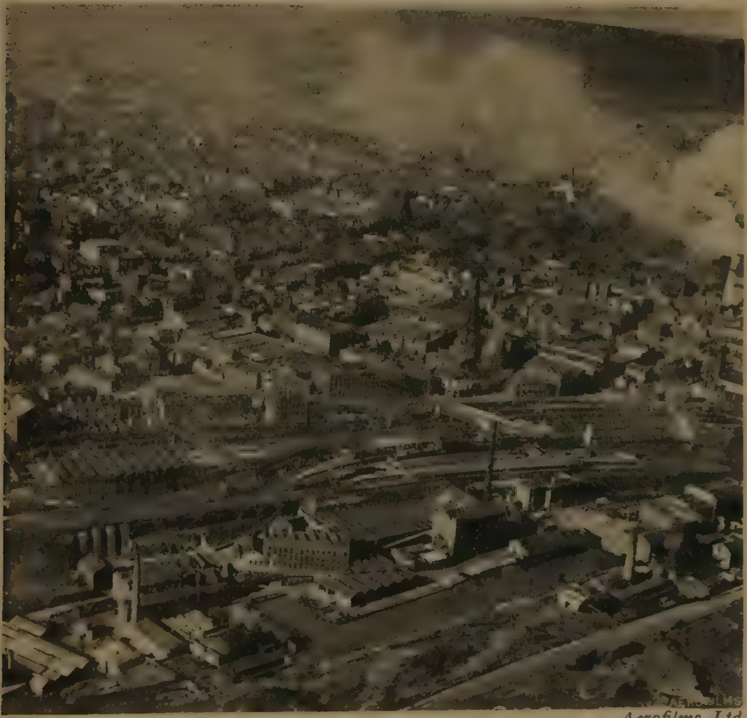


FIG. 157. COAL-FIELDS OF THE BRITISH ISLES

Another great industrial area is situated around the **estuary of the Mersey.** This district has many advantages for the growth of manufactures. It is near the twin ports of Liverpool and Birkenhead; it is served by the Manchester Ship Canal; and it is within easy reach of the Lancashire coal-field and of the Cheshire salt-mining district. It is not surprising, therefore, to find there a group of busy manufacturing towns. Runcorn is specially concerned with the manufacture of chemicals from the salt produced in Cheshire. Widnes, Warrington, and Port Sunlight are noted for the manufacture of soap.

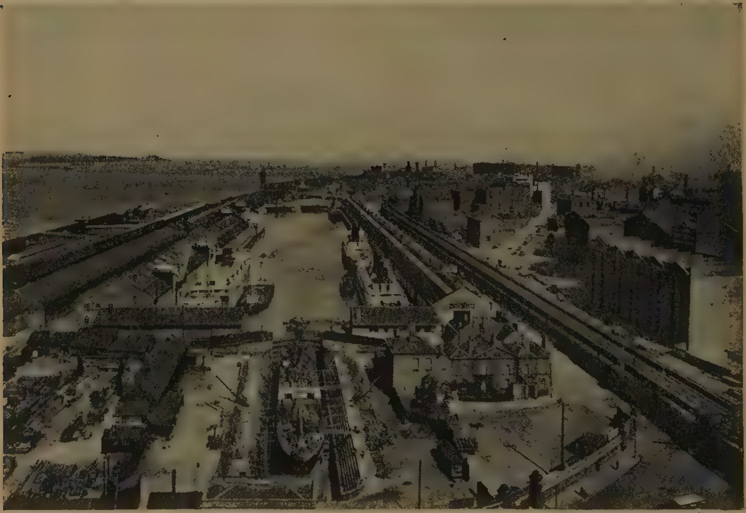


Aerofilms Ltd

FIG. 158. HALIFAX, YORKSHIRE, FROM THE AIR

Around the **estuary of the Tees** is another densely peopled manufacturing area. Coal is obtained from the Northumberland and Durham coal-field, and iron from the Cleveland Hills. Middlesbrough, Hartlepool, and Stockton are engaged in engineering and in the manufacture of iron and steel goods.

Other thickly peopled districts near great estuaries centre on **Bristol**, which specializes in the manufacture of aeroplanes, sugar, tobacco, cocoa, and chocolate; on **Belfast,** which is a ship-building and linen-manufacturing centre; and on **Dublin**, which is important as the capital and chief port of the Irish Republic.

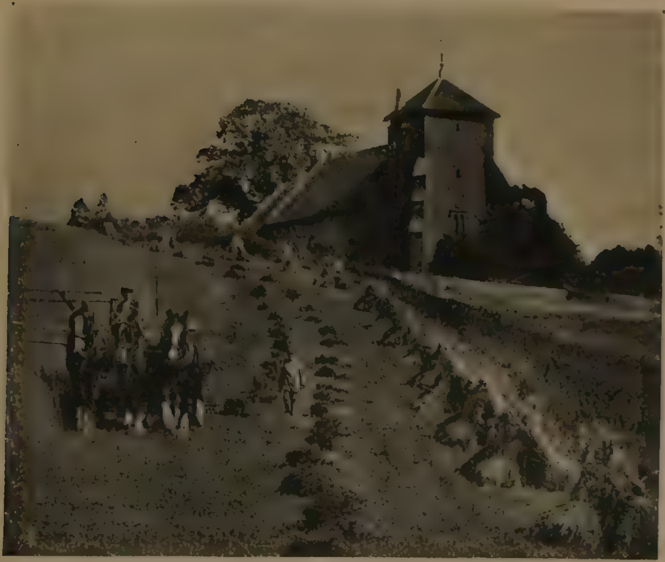


E. H. Gooch

FIG. 159. THE DOCKS, LIVERPOOL

FARMING DISTRICTS

Farming of one kind or another is carried on in every part of the British Isles. In the mountainous regions, however, the land is so infertile that it can be used only for the rearing of sheep. In the densely peopled manufacturing regions farming is a very important industry, for the towns and villages occupy only a small proportion of the total area. As the towns require large quantities of milk, butter, eggs, the nearby farmers generally find it most profitable to specialize in dairy farming.



Topical Press Agency

FIG. 160. HARVEST-TIME IN SUSSEX

The chief farming districts of Britain are, however, the moderately densely peopled areas shown on fig. 156.

Cattle-rearing and dairy farming are carried on mainly in the more westerly districts, which get abundant rainfall from the westerly winds.

Sheep-rearing is very important on the limestone and chalk hills which run in belts across south-eastern England.

Wheat-growing is most important in eastern England and the Midlands, where its cultivation is favoured by fertile soil, fairly level land, cool, moist weather in spring, and rather dry, sunny weather in summer and autumn.

SOME COMPARISONS

People often speak as if farming was not of much importance in Britain. How very untrue this is will be seen by such comparisons as the following. *In proportion to her size*, England and Wales produces 4 times as much wheat as the United States, 7 times as much as Argentina, and 9 times as much as Canada. Again in proportion to her size, England and Wales is the chief sheep-rearing country in the world, having rather more per square mile than Uruguay, 8 times as many per square mile as Argentina, and nearly 20 times as many as the United States. In numbers of cattle per square mile the only American country which surpasses England and Wales is Uruguay; we have, in proportion to our area, 5 times as many cattle as Argentina, 6 times as many as the United States, and 50 times as many as Canada.

Thus we see that in the main branches of farming our own country compares very favourably with those we have studied. Acre for acre, we get more out of our land than they do. This is shown very clearly in the case of wheat. On the average, English wheat lands yield over 18 cwts per acre; in the United States the yield is about 9 cwts; in Argentina, 8 cwts; in Australia and Canada, 7 cwts. The type of farming which produces a great yield from a small area of ground is called *intensive cultivation*. In our own country the land has always been very intensively cultivated in comparison with most parts of North and South America. Even so, our farmers have in recent years greatly increased their production of foodstuffs; since the beginning of the

Second World War the output of wheat has increased by 50 per cent, of barley by 200 per cent, and of sugar-beet by 50 per cent, while the numbers of cattle, pigs, and poultry have also greatly increased.

EXERCISES

1. Find from the atlas which is the wetter side of Britain. Explain why this is so.

2. Construct population maps of Newfoundland and Prince Edward Island, by tracing the outline of each (to the same scale, of course), and putting in one dot for every 5,000 people. (Population of Newfoundland 383,000. Population of Prince Edward Island 106,000.)

3. Arrange the following farms in order of intensity of cultivation: a fruit farm; an English dairy farm; a prairie wheat farm; an Argentine wheat farm; a Japanese rice farm.

4. From which parts of America does Britain import the following commodities: wheat, petroleum, cotton, paper, fruit, nitrate, salmon, furs, chilled beef?

INDEX

A

ALASKA Highway, 162
Alfalfa, 27
Alpaca, 51, 53
Aluminium, 70
Apples, 109, 120, 156

B

Balata, 68
Bananas, 20, 60, 65, 74, 78, 80
Bauxite, 70
Beef, 28, 37
Boll weevil, 182
Butter, 121

C

Campos, 21
Caribou, 128
Cattle, 21, 25, 37, 39, 68. 143, 170, 172, 219
Cheese, 121
Chicle, 74
Chile saltpetre, 44
Coal, 112, 144, 156, 190
Cobalt, 135
Cocoa, 17, 61
Coconuts, 60
Coffee, 17, 19, 65, 74
'Cold waves,' 181
Copper, 45, 53
Corn. *See* Maize
Cotton, 36, 49, 165, 180–2, 189

D

Dairy farming, 119
Diamonds, 22, 70
Discovery of America, 6
Discovery of Canada, 94
'Dry farming,' 46, 172
Dykes, 109

E

Electricity, 102, 121, 124, 182, 195
Emeralds, 66
Eskimos, 126–9
Estancias, 25
Everglades, 184

F

Fazendas, 19
Fishing, 110–12, 114, 152–4
Flax, 28
Flood plain, 176
Floods, 176
Forest rangers, 134
Fruit, 49, 120, 156, 164–5, 188
Fur, 110

G

Gas (natural), 144, 148
Gaucho, 26
Gold, 22, 69, 135, 154, 159, 160, 167
Grape fruit, 78, 188
Grapes, 33, 120
Greenland, 210
Guano, 48
Gulf Stream, 210, 213

H

Haciendas, 87
Hemp, 87
Hudson's Bay Co., 95

I

Ice age, 103
Iron, 114, 189, 195
Irrigation, 33, 49, 156, 171
Ivory nuts, 62

L

Levees, 176
Llama, 51, 56
Llanos, 68
Lumbering, 112, 124, 131, 154, 167

M

Mahogany, 75
Maize, 85, 178–80
Manioc, 13
Mosquitoes, 76

N

Nickel, 135
Nitrate of soda, 44

O

Oranges, 20, 36, 39, 164, 189
Ox-bow lakes, 176

P

Pampas, 25–28, 92
Panama hats, 61
Paper, 121
Peaches, 120, 164
Peons, 74, 87
Pepper, 70
Petroleum, 49, 66, 80, 88, 144, 168
Pitch, 80
Platinum, 66
Prairies, 92, 137–49
Prunes, 164
Pulque, 85

Q

Quebracho, 35, 37

R

Raisins, 164
Reindeer, 161
Rice, 12, 49, 66, 182
River action, 175–8
Rubber, 11

S

Salmon, 152–4, 161
Seals, 128
Sheep, 28, 31, 50, 172, 219
Silos, 103
Silver, 54
Sisal hemp, 87
Sugar, 15, 49, 60, 66, 69, 70, 74, 78, 80, 182

T

Timber, 34, 112
Tin, 54
Tobacco, 17, 78, 80, 190
Tortilla, 85
Trapping, 129, 130
Tundra, 126

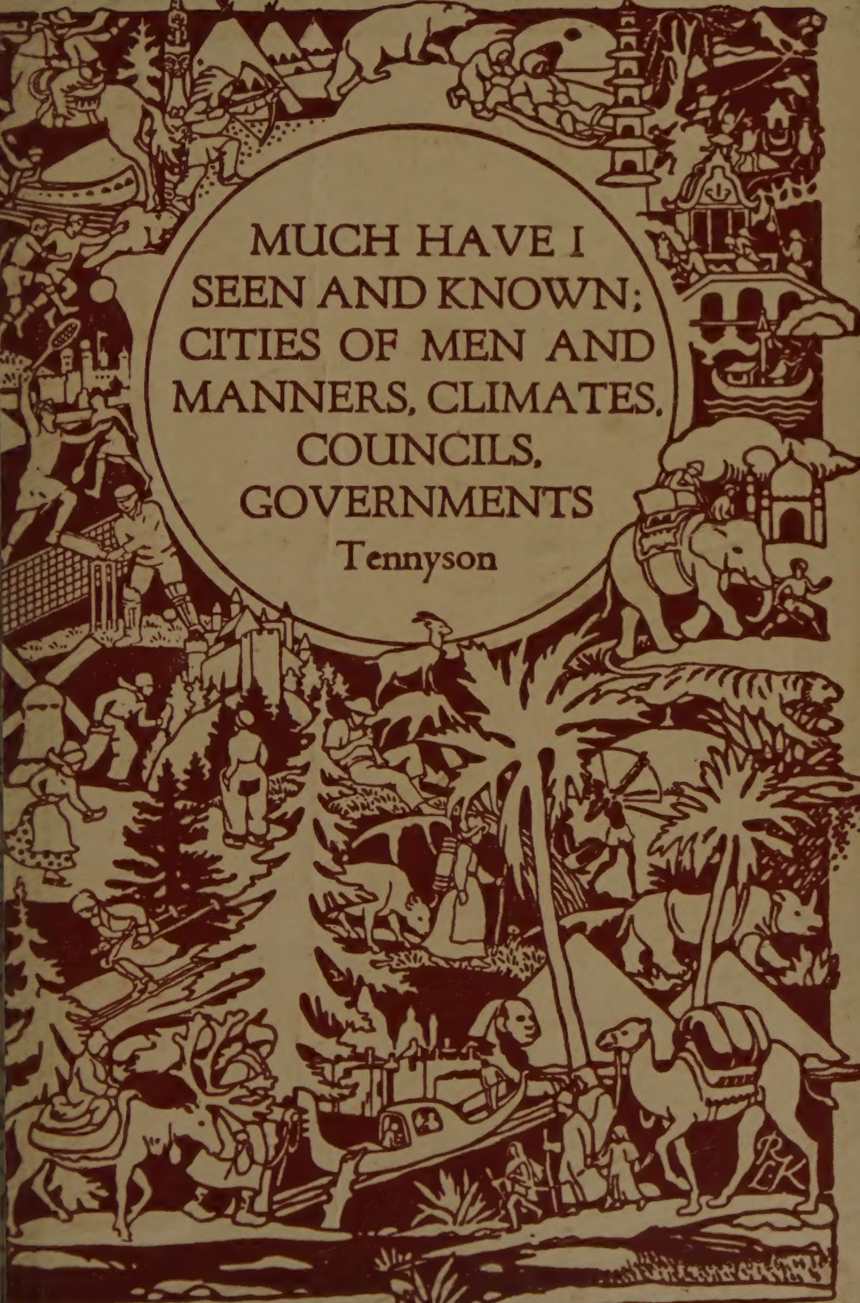
W

Wheat, 28, 46, 137–43, 178, 201, 219
Wine, 33
Wood pulp, 112, 121
Wool, 53

Y

Yerba-maté, 35, 37

REGINALD L. KNOWLES DES ET DEL



MUCH HAVE I
SEEN AND KNOWN;
CITIES OF MEN AND
MANNERS, CLIMATES,
COUNCILS,
GOVERNMENTS

Tennyson